Toshiba Global Commerce Solutions
TCxAmplify

TOSHIBA
Leading Innovation

User's Guide

Version 1 Release 1

G362-0616-00

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TCxAmplify

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Note

Before using this information and the product it supports, be sure to read Safety Information- Read This First, Warranty Information, Uninterruptible Power® Supply Information and the information under Appendix C, “Notices,” on page 207.

June 2014

This edition applies to Version 1 Release 1 of the Toshiba TCxAmplify User's Guide, and to all subsequent releases and modifications until otherwise indicated in new editions.

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Safety

Before installing this product, read the Safety Information- Read This First.

قبل تركيب هذا المنتج، يجب قراءة الملاحظات الآمنية

Antes de instalar este produto, leia as Informações de Segurança.

在安装本产品之前，请仔细阅读 Safety Information
(安全信息)。

安裝本產品之前，請先閱讀「安全資訊」。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information.

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας
(safety information).

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza.

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się
z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este produto, leia as Informações sobre Segurança.

Перед установкой продукта прочтите инструкции по
технике безопасности.

Pred inštaláciou tohto zariadenia si pečítaje Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

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Antes de instalar este producto, lea la informaci¾n de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.

About this guide

This guide describes how to install and configure Version 1 Release 1 of the Toshiba® TCxAmplify product.

Who should read this guide

This guide is intended for the personnel who will install, configure, and use Toshiba TCxAmplify.

Where to find more information

Current versions of Toshiba publications are available on the Toshiba support website at www.toshibacommerce.com/support.

1. Select a product from the hardware or software drop-down list.
2. Click on the appropriate machine type or model for your product.

Notice statements

Notices in this guide are defined as follows:

Notes These notices provide important tips, guidance, or advice.

Important These notices provide information or advice that might help you avoid inconvenient or problem situations.

Attention These notices indicate potential damage to programs, devices, or data. An attention notice is placed just before the instruction or situation in which damage could occur.

CAUTION These statements indicate situations that can be potentially hazardous to you. A caution statement is placed just before the description of a potentially hazardous procedure step or situation.

DANGER These statements indicate situations that can be potentially lethal or extremely hazardous to you. A danger statement is placed just before the description of a potentially lethal or extremely hazardous procedure step or situation.

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Part 1. Toshiba TCxAmplify system concepts

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Chapter 1. Introduction

Toshiba TCxAmplify is a complete consumer mobile shopping and associate line busting software solution that creates an interactive and personalized shopping experience for consumers in a retail store environment. The consumer mobile shopping and associate line busting software components work together to create the Toshiba TCxAmplify solution.

Note: In this publication, the Toshiba TCxAmplify consumer mobile shopping component refers to the Mobile Shopper, and the associate line busting component refers to Associate Line Busting (ALB).

The Mobile Shopper component of Toshiba TCxAmplify creates a personalized, end-to-end shopping experience for consumers while also offering a faster and more convenient checkout process. Shoppers use their personally-owned mobile devices to scan items while shopping, thereby reducing or eliminating the need to re-scan items at the checkout lane. The Mobile Shopper solution also sends alerts to customers on their mobile devices about additional items they might want to purchase and any offers, discounts, or store events that are available. This communication connects the shopper and the retailer, providing valuable insights to the retailer while delivering unobtrusive messages and alerts to the customer.

The Associate Line Busting (ALB) component of Toshiba TCxAmplify allows store associates to use an iOS®or Android mobile device to assist shoppers with the checkout process. Associate line busting capability gives retailers increased flexibility during peak shopping periods, as well as the ability to send information about available eCoupons that are pertinent to the transaction directly to the store associate. If ALB is used, the store associate can suspend the transaction and allow the shopper to retrieve the transaction at a pay station. For more details on Associate Line Busting, see Chapter 9, “Associate Line Busting,” on page 151.

Mobile Shopper highlights

When a shopper scans or keys in an item code using their mobile device, the Mobile Shopper application sends the item code to the Mobile Engine running on a server in the store. The Mobile Engine communicates with the 4690 Point of Sale (POS) system to create a POS transaction and retrieves the item description, price, and other specific data. The item details are sent back to the mobile device and are displayed to the shopper. The shopper uses the Mobile Shopper application at checkout to scan a barcode on the pay station. The Mobile Engine retrieves the scanned items, which allows for a quicker checkout.

The Mobile Shopper uses the 4690 POS solution and its various components for loyalty pricing, weight processing for produce, and tendering capabilities to generate an actual POS transaction with customer-specific pricing. All payment operations are done using PCI-compliant payment devices. The Mobile Shopper application integrates across a wireless network in the store with a virtual session of the POS application, which is hosted on a 4690 store server. This extends the retailer's current (and often highly-customized and proprietary) POS application functionality to the mobile device. The camera in the mobile device is used for item bar code scanning, and for scanning bar code images on the welcome screens of self-service scales (to transfer weighted item information) and self-service pay stations (to transfer the transaction to the pay station for payment).

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As previously mentioned, the Mobile Shopper application sends alerts to shoppers. This Alert feature is simply a mechanism for sending information to shoppers about store specials, additional items they might want to purchase, discounts, coupons, and store events. The mobile device can be configured to play a distinctive audio tone or vibrate whenever a new alert is received, ensuring that the shopper is aware that new information is available to view. The mobile device also sends information to the Mobile Engine about which alerts the shopper viewed, providing the retailer with statistics about which alerts shoppers took the time to read.

Key features

The Mobile Shopper provides the following benefits:

- Creates a personalized, end-to-end mobile device shopping experience for consumers.
- Makes use of both the Application Client/Server Environment (ACE) and Store Integrator (SI) to extend POS functionality from the front-end lanes to the Mobile Shopper (such as: loyalty programs and loyalty pricing).
- Integration with self-service scales to provide a "weights and measures" certified solution for handling produce with mobile devices.
- Integration with Toshiba Self Checkout (CHEC) Systems to allow self-service pay stations (SSPS) to expedite customer payment and checkout.
- Integration with Toshiba Store Integrator GUI to expedite customer payment and checkout.
- An "Exception Framework" to minimize customer interruptions during their shopping experience, but still provide an optimized means of handling exceptions prior to leaving the store (for example, age-restricted items or price required items).
- Establishes a *portal* or a point of entry from the retailer to the shopper through their mobile device to drive sales and enhance their shopping experience.
- Uses a new Data Integration Facility (DIF) based Point of Sale (POS) Integration Hub that sends customer-specific alerts to the mobile device.

How the Mobile Shopper works

To use the Mobile Shopper, shoppers must download a retail version of the application to their mobile device from either the retailer's website or from an application store. The retailer is responsible for defining how the application is deployed to a shopper's mobile device and how shoppers receive any additional information that is required for installation. For more details, see “Architectural overview” on page 8.

- To get started, the shopper presses the icon for the store branded mobile application icon on their mobile device to launch the Mobile Shopper application.

  Note: The Android application can be pre-configured using the appropriate network connection settings. The iOS application must be configured with the appropriate network connection settings using the device's **Settings** feature.
- If a loyalty ID or number is required but was not entered, the shopper is prompted to scan or key in their loyalty number. This loyalty number is saved in the application for future use, and can be changed in the application settings if necessary. If the retailer's POS system supports an Alternate ID entry, the shopper can enter their 10-digit phone number to use as their loyalty ID.
- The shopper can either scan an item with their mobile device camera or use a touch screen keypad to enter item numbers.

- The retailer can send transaction alerts to the shopper's mobile device, which are dependent on either store events or the shopper loyalty number that was used to start the application. Examples of these alerts could include:
  - Deli order ready
  - Pharmacy prescription ready
  - Store events
    - Fresh bread available
    - Wine tasting
  - Digital wallet
    - Coupons that have either been previously selected from a website or targeted to this shopper
- As the shopper adds items to their transaction:
  - The item number, description, net price, and loyalty savings of the most recently scanned item are displayed, along with the running totals and total loyalty savings of the entire transaction. Additional item information can be displayed by touching the item icon and selecting **Display Item Details**.
- Shoppers can display and review all items in the transaction by touching the **Item List** icon.
- Shoppers can use the self-service scale for items that have to be weighed. After scanning the produce barcode or entering the product look-up (PLU) on their mobile device, shoppers can follow the steps on the "weights and measures" certified scale to:
  - Scan the barcode on a self-service scale to associate the mobile device transaction with the scale. The scale displays the produce items previously scanned or entered on the mobile device and prompts the shopper to weigh the item and add it.
  - The shopper can also key in the produce PLU or perform an item lookup by using an image search capability if they have not previously entered the items on their mobile device while shopping.
- After shopping, the customer scans a barcode on either:
  - A self-service pay station (a Toshiba Self Checkout System 6 model running the self-checkout (CHEC) system), or
  - A Store Integrator GUI terminal to suspend the order on the mobile device and retrieve it at the self-service pay station or a Store Integrator GUI terminal.

    The information scanned by the customer is transferred from the mobile device to a self-service pay station or to a Store Integrator GUI terminal before the transaction is completed.
- Shoppers can scan all coupons if they are at a self-service pay station, or they can have the cashier scan them if they are at a Store Integrator GUI terminal.
- If the order contains any exception items (age-restricted item or items that need to be weighed), a trained store employee can help shoppers with questions and operational procedures, and will handle these exceptions at the self-service pay station lane.
- The system provides optional auditing capabilities to validate that what the customer purchased using their mobile device matches the items in their basket.
- The shopper pays with any allowed tender and completes their shopping order.

Chapter 2. TCxAmplify Mobile Shopper overview

This section describes how to install, configure, and use the following components of the Mobile Shopper application. For details on Associate Line Busting, see Chapter 9, “Associate Line Busting,” on page 151.

- Smart phones
- Mobile Engine
- 4690 Controllers/Terminals
- Self-Service Pay Station
- Self-Service Scales
- Store Integrator GUI (Attended Pay Station)
- POS Integration Hub
- CHEC BOSS

Note: The following information is primarily targeted to 4690 ACE customers who want to leverage consumer mobile shopping and associate line busting solutions from Toshiba to their 4690 system.

The goal of this information is to provide an overview on how to integrate the Mobile Shopper application into the retailer's network.

To install and configure the Mobile Shopper, complete the following steps:

1. Verify that all prerequisites are met for your 4690 system.
2. Install the Mobile Shopper on the 4690 store controller, see Chapter 5, “Installing the Mobile Shopper components,” on page 25. Configure the Store Integrator Client Session Server (CSS) to support the POS application virtual sessions (this assumes that Store Integrator is already installed).
3. Install the POS Integration Hub. This assumes that the base Data Integration Facility (DIF) is already installed on the 4690 store controller.
4. Install the Back Office System Server (BOSS).
5. Configure the POS Integration HUB to support the exception framework, alerts, and audits.
6. Configure the Mobile Engine to support the Mobile Shopper or Associate Line Busting (ALB) users.
7. Configure ACE for either the Mobile Shopper or ALB solutions.
8. Configure the front-end systems that will finalize the mobile transactions for:
   - The Store Integrator GUI, or
   - The self-service pay station (SSPS).
9. Verify that Store Integrator, POS Integration Hub, and the Mobile Engine are all functioning properly.
10. Set up the wireless networking environment.
11. Install either the Mobile Shopper or ALB on supported devices.
12. Verify basic communications between devices and the Mobile Engine.
13. Optionally, configure the CHEC lanes to support the retrieval of mobile transactions.
14. Optionally, configure the self-service scales for in-aisle weighed and quantity item support for Mobile Shopper customers.

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Ensure that each step is done properly and that the verification steps along the way are successful before proceeding.

Note: An experienced IT professional who is familiar with the retailer's network should perform these installation and configuration steps.

Architectural overview

The components of the Mobile Shopper for 4690 are shown in Figure 1.

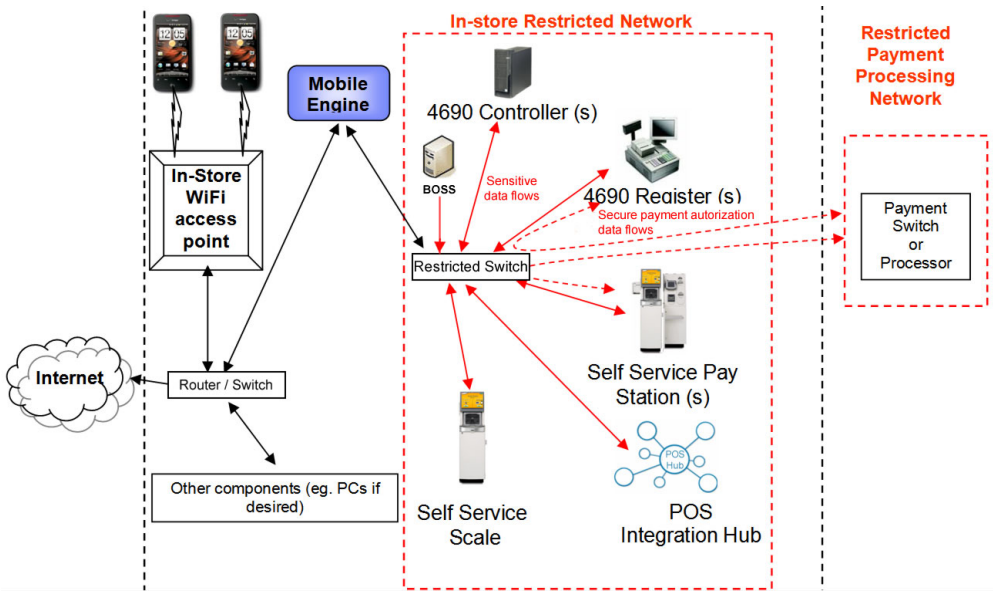

Figure 1. Architectural overview

Mobile Shopper Point of Sale solution

The Mobile Shopper Point of Sale (POS) consists of the following components:

Smart phone

- A very thin interface
- Multi-platform (iOS and Android) phones and other mobile devices

Mobile Engine

- Manages the flow control for each mobile device to facilitate adding new mobile devices.
- Manages exceptions (such as age restricted items, weight-required items, price-required items, and items not on file) for each mobile device and stores the exceptions on the server.
- Manages connections with the self-service scale, self-service pay stations, and Store Integrator GUI POS terminals for integration between the mobile devices and other devices.
- Manages connections with the Point of Sale (POS) Integration Hub to manage alerts and analytic information.

4690 controllers

- Runs the virtual sessions of the POS terminal sales application for the mobile devices.

- Uses Store Integrator Version 3 Release 5 to support up to 80 concurrent ACE sessions on one 4690 controller, and up to 300 concurrent sessions per store.

Self-Service Pay Station

- Handles both cash and non-cash transactions.
- Manages audit transactions.
- Interfaces with the Mobile Engine to retrieve a current transaction and any exceptions for the specific transaction.
- The solution prevents transactions from completing until all exceptions (if any) are cleared.

Self-Service Scales

- Uses 4690 terminals re-purposed to be a "weights and measures" certified scale for adding weight items to the mobile transaction.
- Assumes the graphics used for the self-service scale have a screen resolution of 1024 x 768.

Store Integrator GUI (Attended Pay Station)

- Interfaces with the Mobile Engine to retrieve the current transaction and any exceptions for the specific transaction. The solution prevents transactions from completing until all exceptions (if any) are cleared.
- Manages audit transactions.

POS Integration Hub

- The POS Integration Hub integrates external systems with the mobile device. Some examples include:
  - Promotion Connector – Provides up-sell and cross-sell opportunities for items purchased.
  - In-store Connector – Notifies shoppers of in-store events.
  - Additional Services – The Retrieve Digital Wallet and Retrieve Shopping List.
- Provides the retailer with a portal to the shopper to help increase their sales volume.
- Uses the Data Integration Facility (DIF) to facilitate messaging.

CHEC BOSS

- The mobile install for BOSS creates an additional database which will contain mobile shopper audit criteria and item alert data.
- Two web applications are installed on the BOSS. The first provides web services and database access for auditing, item alerts, and reports. The second application is used to display mobile shopper reports in a web browser.
- Reports can be viewed by opening the 'Mobile Reporting' shortcut that the install places on the desktop. The reports application can be accessed with the `ScsBoss` user credentials.

POS Integration Hub

The Point of Sale (POS) Integration Hub is based on the a Data Integration Facility (DIF) solution that receives events from the Mobile Engine specific to a shopper's behavior, and forwards these events to any services the retailer chooses to implement (see Figure 2 on page 10). These services can then send alerts to the Mobile Engine, specific to the particular event, which forwards them to the

shopper's mobile device. Sample services have been implemented in the base solution to provide the retailer with examples of the types of services that can be provided to the shopper.

The following sections describe the alert categories that can be sent to the shopper's mobile device.

Transaction Alerts

Transaction Alerts notify customers of communications not related to a specific item. For example:

- "Persistent Notifications" are notifications that all customers will receive on their mobile device as soon as they start the Mobile Shopper application. Examples include:
  - Daily specials
  - Weekly ads
  - Scheduled store events (like "Wine tasting tonight from 7 p.m. to 9 p.m.")
- "Real-time notifications" are notifications that occur during the shopping experience and can be sent to all customers, or to a specific customer. Examples include:
  - Hot Bread fresh out of the oven! Come try it!
  - Your prescription is ready at the Pharmacy.
  - Your deli order is ready.
  - Your Digital Wallet coupons – Could be downloaded from a retailer's website.

Transaction Alerts can be displayed by touching the **Alert** icon at the bottom of the screen. The number that appears in the **Alert** icon indicates the number of alerts that have not yet been selected or viewed by the shopper.

Figure 2. Alert icon

Item Alerts

Item Alerts notify customers about up-sell or cross-sell offers that are specific to an item that was just scanned during the transaction. Examples include:

- If the customer purchased a coffee maker, they might receive an item notification to add a warranty to their purchase directly from their mobile device. This is called up-selling.
- If the customer purchased coffee beans, they might receive an item notification to join a coffee club and add that item to their purchase from their mobile device. This is called cross-selling.
- If the customer purchased hot dogs and buns, they might receive a notification that ketchup is on sale (up-selling, but requires the customer to enter the item during their shopping experience).

Item Alerts can be displayed by touching the **Alert** icon that appears next to the item, either on the main screen or in the item list. The number that appears in the Alert icon indicates the number of alerts that have not yet been displayed or viewed by the shopper.

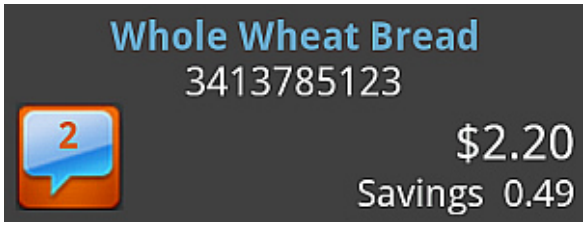

Figure 3. Item Alerts

Advertising Alerts

Advertising Alerts are intended to be used by the retailer to sell advertising space on the mobile device to third party companies. They can be displayed by touching the gray horizontal bar that appears just below the transaction totals.

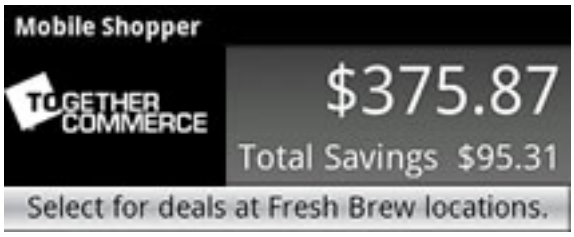

Figure 4. Advertising Alerts

Notes:

1. If there are no advertisements sent to the mobile device, the gray bar shown in Figure 4 will not be displayed on the screen.
2. If there are multiple advertisements, each will be displayed individually for a few seconds and then "roll" to the next advertisement.

Alert types - For each of the three alert categories (transaction, item, and advertising) previously described, the alert type can be one of the following:

Display message

- Displays a message to the shopper in a dialog.
- Displays an **OK** button that when selected, removes the dialog.

Item entry message

- Displays a message that includes an item that can be added to the transaction in a dialog.
- Displays **Yes** and **No** buttons to allow the shopper to add the item to their transaction, then remove the dialog.

URL

- Starts a browser on the mobile device and goes to the specified URL.
- When the shopper backs out of the browser, the Mobile POS application is displayed again.

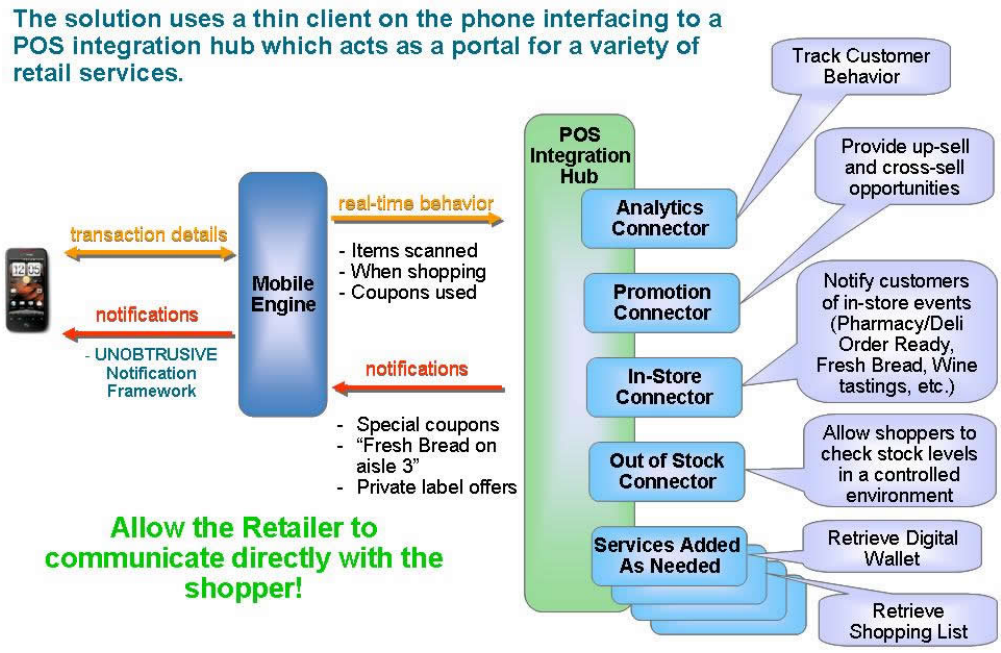
The solution uses a thin client on the phone interfacing to a POS integration hub which acts as a portal for a variety of retail services.
transaction details
notifications
- UNOBTRUSIVE Notification Framework
Mobile Engine
real-time behavior
- Items scanned
- When shopping
- Coupons used
notifications
- Special coupons
- "Fresh Bread on aisle 3"
- Private label offers
Allow the Retailer to communicate directly with the shopper!
POS Integration Hub
Analytics Connector
Promotion Connector
In-Store Connector
Out of Stock Connector
Services Added As Needed
Track Customer Behavior
Provide up-sell and cross-sell opportunities
Notify customers of in-store events (Pharmacy/Deli Order Ready, Fresh Bread, Wine tastings, etc.)
Allow shoppers to check stock levels in a controlled environment
Retrieve Digital Wallet
Retrieve Shopping List

Figure 5. POS Integration Hub

Note: The base product provides infrastructure for some of the connectors described in the POS Integration Hub. For details on specific support statements, see "POS Integration Hub" on page 55.

Wireless network configuration and security

As shown in Figure 1 on page 8, the mobile device communicates with the Mobile Engine over an in-store wireless network using Internet Protocol version 4 (IPv4). The mobile device obtains an IP address on the wireless network from a Dynamic Host Configuration Protocol (DHCP) server for the Mobile Shopper. For Associate Line Busting (ALB), static or DHCP can be used. The mobile device application *discovers* the IP address of the Mobile Engine by sending a multicast message to a multicast group. Therefore, the wireless router or firewall must be configured to forward Internet Group Management Protocol (IGMP) traffic. The port used for the multicast messages and the port that connects the mobile device to the Mobile Engine is configurable in the `mobileserver.properties` file, or one of its extensions (see "Property extension mechanism" on page 201 for details).

The mobile application can support various wireless security protocols, such as WPA2, WPA, and WEP. The security parameters required for connecting to the wireless network are pre-configured in the mobile application for Android phones. The security parameters must be configured on an iOS device using its Settings feature. Networks are pre-configured in the mobile phone application.

The wireless network must be isolated by a firewall from the store network used by the POS system. It is the responsibility of the retailer to configure the firewall to ensure it provides the required separation from the POS network, while still allowing communication between mobile devices connected to the wireless network and the server on which the Mobile Engine is running.

The mobile application does not require access to the Internet, so the link between the wireless router and the Internet shown in Figure 1 on page 8 is not absolutely required. Connectivity between the wireless network and the Internet is only

required if the retailer defines an alert that requires access to the Internet. For example, if an alert is defined that includes a URL to the retailer's website to display the weekly specials, there would need to be connectivity between the wireless network and the retailer's website.

The mobile application does not store, process, or transmit cardholder data. The process of paying for a transaction that was created using the mobile application is handled entirely by the POS application. The transaction is transferred from the mobile device to either the self-service pay station or a POS terminal before the payment process is started. This means that the mobile application is never exposed to cardholder data, and the cardholder data is not transmitted over the wireless network used by the mobile application.

It is the responsibility of the retailer to ensure the overall security of the wireless network, firewall and router configuration, and to ensure the systems that customers use to pay their transactions comply with PCI requirements.

Chapter 3. Requirements

This section describes the hardware and software requirements for the Mobile Shopper and the Associate Line Busting (ALB) components of Toshiba TCxAmplify.

Hardware requirements

For detailed information about the Mobile Shopper resource requirements, use the Knowledgebase search at www.toshibacommerce.com/support and search on Store Integrator Resource Requirements article.

Toshiba TCxAmplify controller requirements

The Mobile Shopper and Associate Line Busting (ALB) components require virtual sessions running on a controller, and a 4690 Version 6 Release 4 OD10 or later operating system. These virtual sessions are called the Store Integrator Client Sessions Server (CSS) sessions. The Mobile Shopper and ALB virtual sessions do not use the same amount of 4690 controller processor and disk resources. The ALB sessions use more 4690 controller processor and disk resources. For more details, use the Knowledgebase search at www.toshibacommerce.com/support and search on the Store Integrator Resource Requirements article.

Toshiba TCxAmplify requires a dedicated 4900-785 subordinate controller with 4 GB of RAM and the Intel® Core i3 2120 processor option to host the Mobile Shopper virtual sessions.

Software requirements

This section describes the software requirements for the Mobile Shopper component of the Toshiba TCxAmplify for 4690.

Store Integrator

Toshiba TCxAmplify for 4690 requires Store Integrator Version 3 Release 5.

4690 OS

For use with Store Integrator, the 4690 V6 R4 (2D) Operating System or later is required. Store Integrator running with the 4690 OS does not support separating controllers on different networks.

Virtual file system setup

Java™ programs often have file names greater than eight characters in length, so the 4690 operating system provides support for these file names by using a virtual file system (VFS). VFS must be enabled in the 4690 operating system before you install Store Integrator.

For more information, see the latest *4690 OS Programming Guide* at www.toshibacommerce.com.

POS applications

This section describes the current requirements for using Store Integrator with Application Client/Server Environment (ACE). Before installing Store Integrator, contact Toshiba support to identify and obtain the most recent interim fixes

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applicable to the software. The interim fix numbers listed in this guide could have been superseded as a result of a future Authorized Program Analysis Report (APAR) activity.

Contact your application provider or integrator for the requirements for using Store Integrator with another POS application.

ACE requirements

Store Integrator requires ACE Version 7 Release 4 or later.

4610 POS printer

4610 POS printer support is required.

Remote Management Agent requirements

Using Store Integrator with the Remote Management Agent (RMA) requires a V3 or later RMA Master Agent in the store. Any RMA General Agent on a Store Integrator system must be Version 2 Release 6 or later for the Store Integrator Agent to be discovered.

Data Integration Facility

The 4690 Data Integration Facility (DIF) Version 2 Release 2 or later is required for customers who use the POS Integration Hub.

4690 Mobile Shopper system prerequisites

The 4690 Mobile Shopper solution requires the following system prerequisites.

4690 Operating Environment:

- 4690 Enhanced Operating System Version 6 Release 4 OD10 or later.
- 4690 Store Integrator Version 3 Release 5 for the Mobile Shopper and Associate Line Busting (ALB) – full version including Client Session Server (CSS) and Graphical User Interface (GUI). The base version of Store Integrator must be coordinated with the build level of the Mobile Shopper software as it extends Store Integrator in several areas.
- 4690 Data Integration Facility (DIF) Version 2 Release 2 or later.
- Optionally, if implementing the self-service paystation or using Self Checkout Lane as a payment station, the Mobile Shopper for 4690 requires CHEC Version 6 Release 7 Refresh or later. (If using CHEC in the Mobile Shopper solution, most of the software prerequisites for CHEC will govern the prerequisites for Mobile Shopper since they use many of the same infrastructure and system components.)

Consumer mobile devices for the Mobile Shopper require the following minimum platform levels:

- Android Operating System Version 2.2
- iOS Version 4.3 (phones 3GS or later)

Associate Line Busting requires one or more of the following devices:

- Motorola® MC40 (Android)
- Ingenico ISMP for iPod® Touch (iOS)
- Honeywell Captuvo SL22 SLED for iPod Touch (iOS)
- Other devices might be available through other service offerings

Terminal peripherals - A scanner or scale is required for the self-service scale, Store Integrator GUI pay station, and the self-service pay station (SSPS).

Table 1. Store Integrator GUI Pay Station - minimum hardware requirements

OS	Terminal
OS 4690 Version 6 Release 4 Classic or later	2.0 GHz / 512 MB
OS 4690 Version 6 Release 4 Enhanced or later	SurePOS™ 350 / At least 1 GB RAM or any SurePOS 700 terminal supported by Enhanced 4690 OS Version 6 Release 4 or later.

Table 2. Self-Service Pay Station - minimum hardware requirements

CHEC OS	Terminal models and (RAM)	Controller (RAM)
Note: See the *CHEC Software Planning, Installation, Maintenance Programming Guide Version 6.7*, or later for minimum terminal requirements.		
CHEC on 4690	4800-742, 4800-743, and 4900-785	2 GB RAM or more

BOSS:

- CHEC 6.7 BOSS or later.
- See the *CHEC Software Planning, Installation, Operations, Maintenance and Programming Guide Version 6.7* (see the section on minimum hardware requirements).

Chapter 4. Network setup examples

This chapter contains examples of network setup planning for the Mobile Shopper and Associate Line Busting solutions.

Example of a network setup for the Mobile Shopper

There are a variety of network topologies that can be used with the Mobile Shopper. See Figure 6 for an example of the Mobile Shopper.

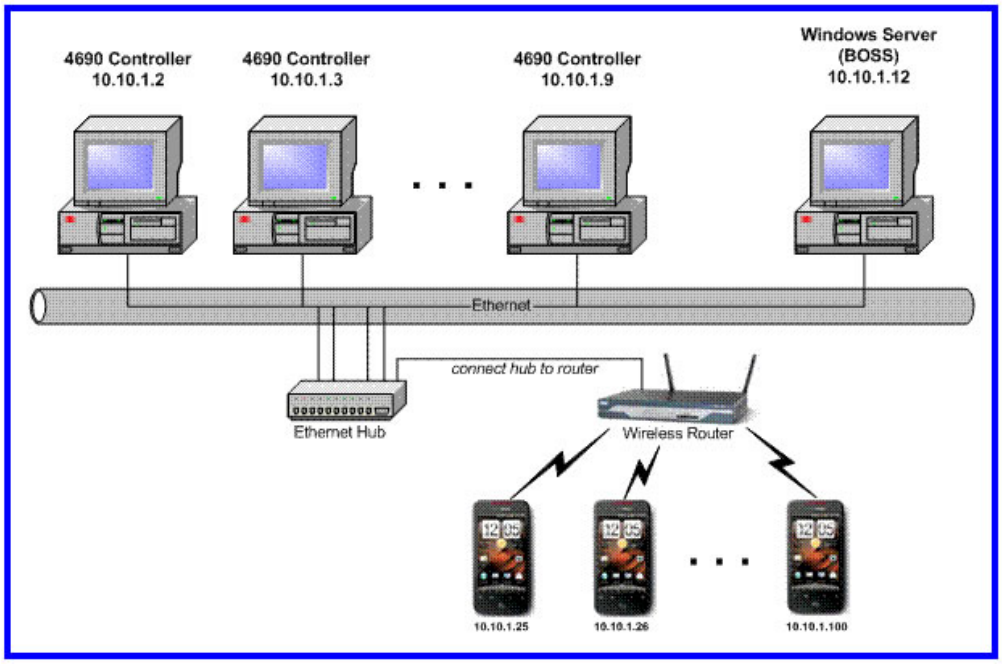

Figure 6. Mobile Shopper network architecture

Example of a network setup for Associate Line Busting

The Associate Line Busting (ALB) solution should be configured in a similar way to the layout in Figure 7 on page 20. This layout also illustrates how the ALB solution uses the Back Office System Server (BOSS) in its network setup.

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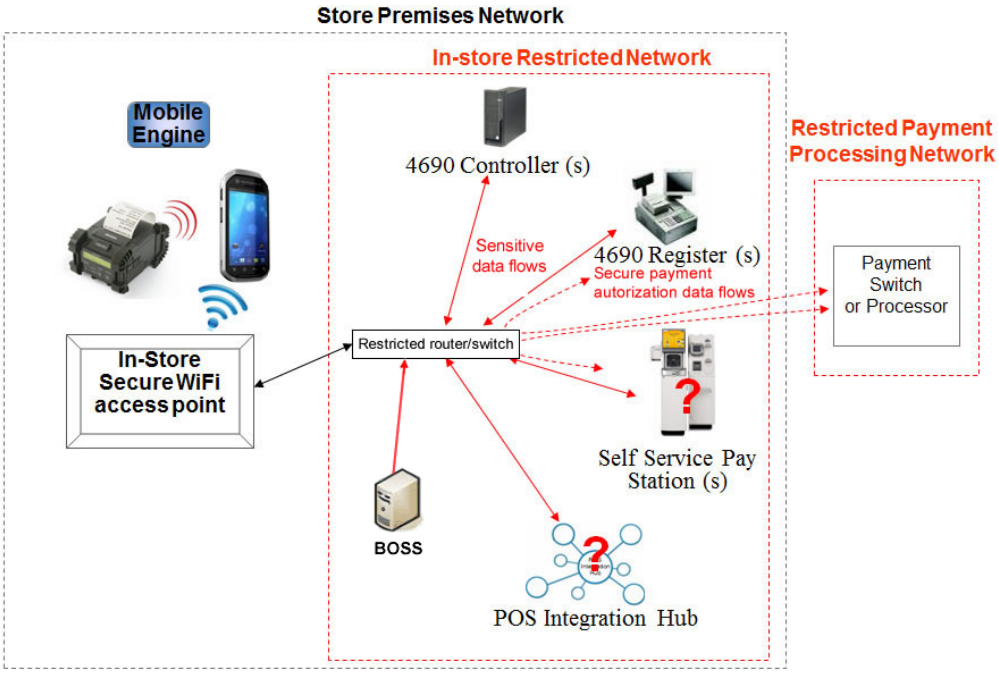

Figure 7. Associate Line Busting network architecture

After configuring the system as shown, the final step in setting up the networking hardware is configuring the wireless router. Typically, wireless routers use configuration software that is accessed from a web browser. Review the instructions provided with the wireless router to complete configuration.

The remainder of this section contains the basic steps on how to configure a router using a NETGEAR® router as an example. The specific configuration program for your router may be slightly different, but these instructions provide a general idea of what must be done:

1. To access the NETGEAR configuration program, enter the following URL: `http://192.168.1.1`
2. Enter your username and password on the initial screen. See the instructions for your router to find the default settings for these fields.
3. Look for a configuration screen that allows you to set the LAN IP Address and the DHCP starting and ending addresses (see Figure 8 on page 21). In some router configuration utilities, these parameters are set on two different screens. For the NETGEAR router used in this example, both of these settings appear on the same configuration screen:

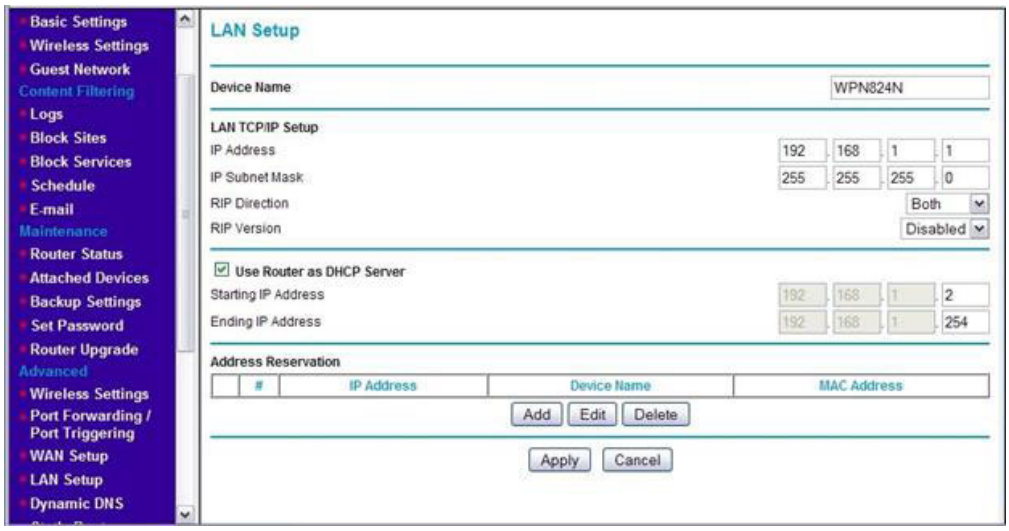

Figure 8. Initial wireless router settings

4. Set the LAN IP address to `10.10.1.15` as shown in Figure 9. The IP SubnetMask defaults to `255.255.255.0`, which is the same subnet mask used for the wired network, so no changes are required to the wireless router subnet mask configuration.

   Note: The default LAN IP address is typically `192.168.1.1`, but this must be changed to match the IP address range of the wired network used for your 4690 controllers and the Back Office System Server (BOSS). When configuring the wireless router, a LAN IP address must be selected that is in the same subnet as these other systems, but the router does not conflict with the addresses used by these other systems. For example, an IP address of `10.10.1.15` could be used for the wireless router since this address is greater than any of the addresses used by the 4690 controllers and the BOSS.

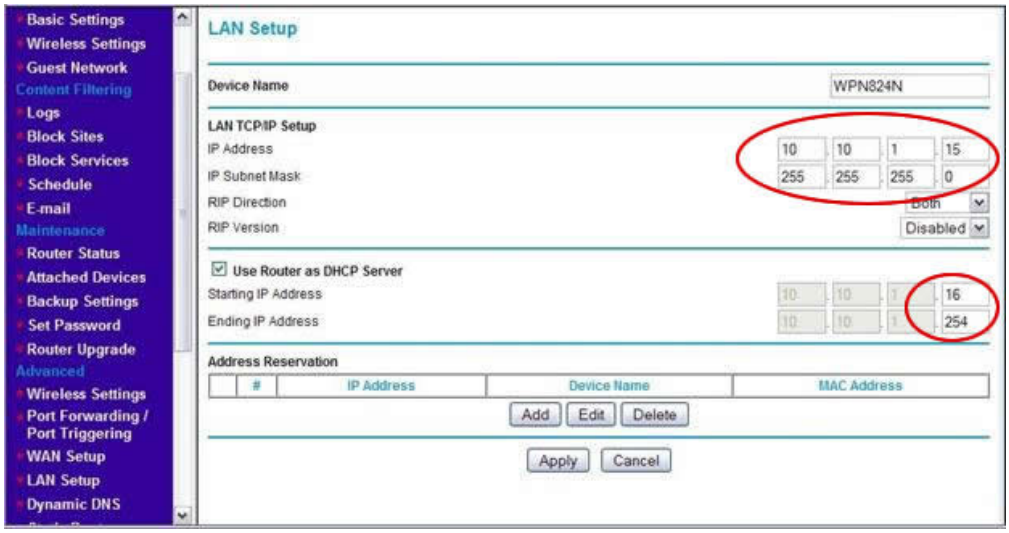

Figure 9. Modified wireless router configuration

Note: The wireless router serves out IP addresses to the mobile devices and the wireless router configuration utility allows the user to define the range

of addresses that will be used. A range must be used that does not conflict with any of the other IP Addresses used by other systems. Since the other systems are using addresses in the range of 10.10.1.2 through 10.10.1.15, the DHCP range should be set to 10.10.1.16 through 10.10.1.254. Figure 9 on page 21 shows the two changes that were made to the wireless router configuration to set the LAN IP address and the DHCP range. The areas changed are circled in red.

Part 2. Using the Mobile Shopper for 4690

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Chapter 5. Installing the Mobile Shopper components

This section contains information on how to download and install the Mobile Shopper component.

The Mobile Shopper installation extends the 4690 Store Integrator Client Session Server (CSS) component of the system that runs virtual sessions of the point of sale (POS) terminal sales application for the mobile devices or Associate Line Busting (ALB) devices.

The changes for CSS, along with the Mobile Shopper, are installed through the 4690 Apply Software Maintenance (ASM). Once installed, you can configure the sessions to run on the store controller. The instructions in this section assume that Store Integrator has already been installed on the controller.

Note: Store Integrator Version 3 Release 5 is a required prerequisite of the Mobile Shopper package.

Installing the Mobile Shopper on a 4690 operating system

The Mobile Shopper can be installed interactively, silently, or remotely.

Interactively installing Mobile Shopper

Perform the following steps to interactively install the Mobile Shopper on a 4690 controller:

1. If the Mobile Shopper is already installed, check **Apply Software Maintenance** to verify that it is not in backup mode. Cancel or accept before proceeding.
2. To begin installing the Mobile Shopper, insert the installation CD into the master controller and type the following at a command prompt:

   ```
   p:\4690\install
   ```
3. Accept the license agreement for the Mobile Shopper. An installation menu is displayed.
4. Select **option 4** to install the Mobile Shopper. The installation process takes several minutes.
5. After the installation is complete, select the option to view the installation log (`C:\MOBSMSTR.LOG`). Verify that no errors occurred during the installation.

   Note: If there are any errors, contact Toshiba support personnel before continuing.
6. From the 4690 System Main Menu, select **Installation and Update Aids**.
7. Select option 5, **Apply Software Maintenance**.
8. Select option 2, **Activate Maintenance**.
9. From the **Activate Maintenance** panel, click **Test** *or* **Accept** to process the Mobile Shopper. The software maintenance files are distributed to other controllers on the local area network (LAN). The controllers will restart after the distribution is completed.

Silently installing the Mobile Shopper

To install the Mobile Shopper using the silent mode, run the following command:

1. If the Mobile Shopper is already installed, check **Apply Software Maintenance** to verify that it is not in backup mode.

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2. To install the Mobile Shopper using the silent mode, run the following at a command prompt:

   ```
   p:\4690\install mob
   ```

3. After the installation is complete, select the option to view the installation log (`C:\MOBSMSTR.LOG`). Verify that no errors occurred during the installation.

   Note: If there are any errors, contact Toshiba support personnel before continuing.

4. From the 4690 System Main Menu, select option 4, **Installation and Update Aids**.
5. Select option 5, **Apply Software Maintenance**.
6. Select option 2, **Activate Maintenance**.
7. From the **Activate Maintenance** panel, click **Test**, *or* **Accept** to process the Mobile Shopper. The software maintenance files are distributed to other controllers on the local area network (LAN). The controllers will restart after the distribution is completed.

Note: To review the results of the silent installation, edit the `C:\MOBSMSTR.LOG` file.

Remotely installing the Mobile Shopper

To prepare a directory for a remote distribution, the Mobile Shopper installation must be prepared on a local master controller with all controllers on a LAN system up and running.

Note: Prior to starting the remote install, it is necessary to verify that there are no products or components in backup. If products or components are in backup, use ASM to cancel or accept each one.

The remote install will delete the contents of `C:\ADX_IMNT` when it begins.

1. To prepare the remote installation for Mobile Shopper, insert the installation CD into the master controller on the local system.
2. From command mode, type `p:\4690\install` and press **Enter**.
3. An installation menu is displayed.
   a. Select **option 5** to prepare a remote installation directory for Mobile Shopper.
4. A warning is displayed prior to the deletion of the contents in `C:\ADX_IMNT`. Select one of the following:
   a. Press **1** to proceed.
   b. Press **2** to stop the process and return to the main menu.
5. The remote installation directory create procedure produces several files in `ADX_IMNT` with 2,500,000 bytes or less. The newly created files are `MOBRINST.ZIP` and `MOBRINST.Zxx`, where ***xx*** ranges from 00 to 99 for as many files that are needed. If this file size is too big or small for your location, you can change the batch file to create an acceptable file transmission size for your location.
6. After the directory preparation is complete, the installation menu is displayed again.
   a. Select **option 8** to display the installation log file for the current installation and check for error messages.
   b. The output from this step can also be viewed by reviewing the `C:\MOBPREP.LOG` file.

Note: If there are any errors, contact Toshiba support personnel before continuing.

7. If you are using ADCS/HCP to transmit the files from the host-based controller to the host, there are two problems you might encounter when storing the files:
   a. Advanced Data Communications for Stores (ADCS) has a 8 MB file size limit. The size of the Mobile Shopper maintenance packages exceeds this limit.
   b. ADCS has a 6-character file name limit, so you will need to use an ADCS/HCP coded name that will get or put the files in the correct 4690 subdirectory.

      To transfer the MOBRINST.* files with ADCS/HCP coded names, first rename each of the files to ADXSIFxF.DAT so that each file has a unique name.

      Use the ADCS/HCP name !SIFxF to transmit each of the files. You will need to rename the files back to the original MOBRINST.* file names at the remote location before continuing.
8. Create or update the Remote Command Processor (RCP) selection file (ADXCSHCF.DAT in ADX_IDT1) and create an RCP command file, EAMRCP1F.DAT, to decompress the ADX_IMNT directory.
9. Initiate the REMOTE batch file to copy the files and perform an installation/migration, and put the installation/maintenance into test mode on the remote controller. The selection file (ADXCSHCF.DAT) needs to contain the name of the command file: EAMRCP1F.DAT. The command file (EAMRCP1F.DAT) needs to contain the following command:
   a. The selection file (ADXCSHCF.DAT) needs to contain the name of the command file: EAMRCP1F.DAT.
   b. The command file (EAMRCP1F.DAT) needs to contain the following command: C:\ADX_SPGM\COMMAND -C C:\ADX_IMNT\MPREMOTE.BAT
   c. ADXCST0L N 1CC to install the Mobile Shopper.

   Note: You may also include the command to run Apply Software Maintenance (ASM) in this file.
10. Transfer the MOBRINST.* files from C:\ADX_IMNT to your host processor, and then to the ADX_IMNT directory in your target store.

    Transfer the Compression Utility MPCMPUTL.BAT, and the Remote Install Utility MPREMOTE.BAT, to the ADX_IMNT directory in your target store. The BAT files can be found on the Mobile Shopper installation CD in the \4690 subdirectory.

    Transfer the RCP selection file(s) and the RCP command file(s) to the ADX_IDT1 directory of your target store.

    Note: ADCS users must rename the transmitted files to the original file names before continuing.
11. Invoke the RCP using the START USER PROGRAM feature of ADCS or the **INITIATE CLIST** command of Netview Distribution Manager (Netview DM).

    After the installation or maintenance has been applied, retrieve the following files to ensure the maintenance was successful:

    - ADX_SDT1:ADXCSHSF.DAT
    - C:\MPREMOTE.LOG
12. If the installation was successful and you did not include the **ASM** command in the RCP selection file, apply the software maintenance at this time.

See the *Toshiba Global Commerce Solutions Store Integrator User's Guide* for details on installing Store Integrator components.

Point of Sale Integration Hub

The Point of Sale (POS) Integration Hub is based on the Data Integration Facility (DIF) that integrates external systems with the Mobile Shopper to allow a retailer to communicate directly with a customer's mobile device. POS IH is required for handling alerts and managing customer audits.

POS Integration Hub installation

The Mobile Shopper Point of Sale (POS) Integration Hub installation consists of running the Application Software Maintenance (ASM) package and modifying the DIF configuration to start the Mobile Shopper POS Integration Hub services.

The following instructions assume that Data Integration Facility (DIF) and the Mobile Shopper have already been installed on the controller.

1. Accept or cancel any previous level of the Mobile Shopper POS Integration Hub. If the previous maintenance is not accepted, from the 4690 main menu:
   a. Select **'4' - Installation and Update Aids**.
   b. Select **'5' - Apply Software Maintenance**.
   c. Select **'2' - Activate the maintenance**.
   d. Select **'3' - Accept the following product** (or **'2' to cancel the following product**: Mobile Shopper POS Integration Hub).
2. To install the Mobile Shopper POS Integration Hub, use the following procedure:
   a. Insert the installation CD into the drive.
   b. Enter **p:\4690\install**.
   c. Select **Install Mobile POS Integration Hub** from the menu and follow the prompts.
   d. After the installation ends, select option **9** to exit the installation.
   e. After you exit the command window:
      1) Select **'4' - Installation and Update Aids**.
      2) Select **'5' - Apply Software Maintenance**.
      3) Select **'2' - Activate the maintenance**.
      4) Select '**Test' - the maintenance for**: Mobile Shopper POS Integration Hub.
      5) Wait for all controllers to reboot.
3. To integrate the Mobile Shopper POS Integration Hub into the DIF configuration, use the following procedure:
   a. The environment configuration for the Mobile Shopper POS Integration Hub is performed by `ADX_IPGM:DIFPIH.BAT`. Add the following line to `ADX_IPGM:DIFUSER.BAT` if it is not already present:

      If exist DIFPIH.BAT batch DIFPIH.BAT
   b. The DIF configuration properties that are needed to enable the Mobile Shopper POS Integration Hub are located in `ADX_IPGM:DIFPIH.TXT`.
   c. If `ADX_IPGM:SIIBMDIF.PRO` exists, check to see if the Mobile Shopper POS Integration Hub properties from `ADX_IPGM:DIFPIH.TXT` are already present in `ADX_IPGM:SIIBMDIF.PRO`. If the values that are already in `ADX_IPGM:SIIBMDIF.PRO` are acceptable, no further action is necessary.

Individual values can be changed by placing a line containing the desired property value in ADX_IPGM:SIUSERDI.PRO.

d. If ADX_IPGM:SIIBMDIF.PRO does not exist or does not contain the Mobile Shopper POS Integration Hub properties from ADX_IPGM:DIFPIH.TXT, then perform the following:
   1) If neither ADX_IPGM:DIFUSER.PRO or ADX_IPGM:SIUSERDI.PRO exists, copy ADX_IPGM:DIFPIH.TXT to ADX_IPGM:SIUSERDI.PRO.
   2) If ADX_IPGM:DIFUSER.PRO does exist, then the Mobile Shopper POS Integration Hub configuration will be merged into this file. Otherwise, the configuration will be merged into the existing ADX_IPGM:SIUSERDI.PRO file.
      a) Save the current DIFUSER.PRO or SIUSERDI.PRO if it already exists.
      b) Merge the container.services value from DIFPIH.TXT with the container.services value from DIFUSER.PRO; or, SIUSERDI.PRO so that container.services contains the desired Mobile Shopper POS Integration Hub services along with the existing Data Integration Facility services that were in use prior to the Mobile Shopper POS Integration Hub software installation. MobileBrokerService, ItemExceptionsSuspendService, ItemExceptionsSaveService, ItemExceptionsRetrieveService, and ItemExceptionsRemoveService are required in all installations and therefore, are the minimum services that must be configured. Other Mobile Shopper POS Integration Hub services are optional.
      c) Copy the remaining properties from DIFPIH.TXT to DIFUSER.PRO, or to SIUSERDI.PRO.
   3) If using the Mobile Shopper, change the value of AuditSoapRequestActor.host.url to the URL of the Mobile Audit Web Service.
   4) If using the Associate Line Busting component, comment out the AuditSoapRequestActor.host.url and EventSoapRequest Actor.host.url lines.
e. In order to activate the configuration, stop DIF, and then wait one minute to restart it. Examine ADX_IPGM:DIFLOG.0 and verify that all DIF services started successfully.

Smart phones

The following sections describe how to install smart phones for the Mobile Shopper.

A retailer must brand the smart phone application to match their look and feel, and then use the appropriate channel to distribute the software (either through the Google Play Store, their own website for Android phones, or the Apple® Retail Store for iPhones®).

Android installation

Customer installation - It is the retailer's responsibility to provide an installable application through the Google Play™ Store or the retailer's website.

iOS installation

It is the retailer's responsibility to provide an installable application through iTunes® or the retailer's website.

Self-Service Pay Station installation

Version 6.7 of CHEC must be installed prior to installing the CHEC Mobile extensions. The CHEC Mobile extensions for 4690 are installed as a part of the Mobile Shopper component. The CHEC Mobile extension requires that the CHEC application be installed on the 4690 before the extension can be used.

For details on creating a 4690 CHEC terminal, refer to the *Toshiba Checkout Environment for Consumer-Service Software Planning, Installation, and Maintenance Guide Version 6.7*.

Back Office System Server installation

Version 6.7 of CHEC must be installed prior to installing the CHEC Mobile extensions. Installing the Mobile Shopper on the CHEC Back Office System Server (BOSS) will provide auditing capability for mobile transactions and viewing Mobile Shopper reports. It is a requirement to install the Mobile Shopper on the BOSS, not an option.

The install creates the `MobileE` database. The `MobileE` database contains sample Mobile Shopper audit criteria and item alert data.

There are two web applications that are installed. The first application provides web services and database access used for auditing, item alerts, and reports. The second application is used to display reports in a web browser.

Installation

Perform the following steps to install the BOSS:

1. Insert the **Mobile Shopper CD** into the CD drive on the BOSS (for example, **D:**).
2. Open a command window and change the directory to `D:tools\install`.
3. Type **install** to start the installation. The install logs are located in `C:\install\log\MobileInstall.log`. The database creation log is located in `C:\install\log\BuildMobileE.log`.

For more information on creating a CHEC BOSS, refer to the *Toshiba Checkout Environment for Consumer-Service Software Planning, Installation, and Maintenance Guide Version 6.7*.

Chapter 6. Configuring the Mobile Shopper on 4690

This section describes how to configure the Mobile Shopper component on 4690.

4690 configuration

The TCP/IP hostname resolution can be done through a local host file or domain name server. If you are not using a domain name server, make sure the `resolv` file does not contain a reference to a name server. Inspect the `resolv` file (`ADX_SDT1:ADXHSIRF.DAT`) and comment out or delete any reference to name server IP addresses that are not used.

1. Add the following entries to the hosts file (`\adx_sdt1\adxhsihf.dat`) file:
   a. **yyy.yyy.yyy.yyy** `MobileEngineHostname` where **yyy.yyy.yyy.yyy** is the IP Address of the machine where the Mobile Engine will be executing.
   b. **zzz.zzz.zzz.zzz** `POSIntegrationHub` where **zzz.zzz.zzz.zzz** is the IP Address of the machine where the `POSIntegrationHub` will be executing.
   c. **www.www.www.www** `MobileDBHostname` where **www.www.www.www** is the IP address of the machine where the mobile database resides.
   d. Ensure an entry exists for each controller in the environment as follows:
      - **xxxx.xxxx.xxxx.xxxx CC**
      - **xxxx.xxxx.xxxx.xxxx DD**
      - **xxxx.xxxx.xxxx.xxxx EE**
      - **xxxx.xxxx.xxxx.xxxx FF**
2. Ensure the hosts file is distributed to all controllers (ADXCSU0L 3 5 hosts). Validate the network by pinging `MobileEngineHostname` from the 4690.
3. Ensure that each store controller has their Hostname User Logical Filename assigned to their controller ID. To check this, you can go to the command mode on each controller and enter **define –s –n hostname**. For example, if you issued the define command on the EE controller, you should see the following "hostname = EE". If the hostname definition is not correct, use Controller Configuration to set it properly for each controller.
4. Configure Suspend Retrieve.

   Suspend Retrieve configuration for the ACE environment

   a. Configure the ACE suspend/retrieve, including local suspend/retrieve on all controllers. This information can be found in the *SurePOS Application Client/Server Environment for 4690 OS Planning and Installation Guide* (see the section on planning the system environment).
   b. Confirm that the controller specific logical names for the local suspend retrieve file were successfully defined during the ACE install. For each controller ID **xx**, there should be logical names for `xx_SRTRX:` and `xx_SRKYC:`, where **xx** is the controller ID for each specific controller on the system. If these logical names do not exist after ACE has been installed, then user-defined logical file names must be defined for each. Search on knowledgebase article R1004936 at www.toshibacommerce.com for more information.
   c. Modify `C:/ADX_IPGM/ACECMISC.USx` (where **x** is an available number in your ACE environment). This file allows suspended transactions to be ready for retrieval sooner. The `C:/ADX_IPGM/ACECMISC.USx` file should include the following lines (";" and the "/A:" are significant):

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```
;The idle time to wait between suspended transactions in milliseconds
;Range is 3000 to 10000 milliseconds(3 to 10 seconds)
/A:[Suspend]
/A:SuspendInterval = "3000"
```

Ensure the new file is distributed (ADXCSU0L 3 5 ACECMISC.USx).

5. Ensure ACEGIPC is configured to run on the controller where Mobile Shopper CSS sessions are running. For information on ACE configuration, reference the chapter on planning the system environment in the *SurePOS Application Client/Server Environment for 4690 OS Planning and Installation Guide*, Version 7 Release 4 (G362-0548).
6. Reboot all controllers once the activation has completed.

Mobile Engine

The Mobile Engine component of the Mobile Shopper performs the following tasks:

- Manages the UI for each mobile device.
- Manages exceptions (for example, age restricted items, weight required items, price required items, and items not on file) for each mobile device and stores them for retrieval by the Store Integrator GUI or the self-service pay station when appropriate.
- Manages the connections with the self-service scale, self-service pay stations, and the Store Integrator GUI POS terminals for integration between a mobile device and these devices.
- Manages the connections with the POS Integration Hub to manage alerts and analytic information.

Mobile Engine configuration

The Mobile Engine is configured using the file ADX_IPGM:MECFG00F.DAT. To activate a configuration, copy MECFG00F.DAT and replace the '00' with the controller node ID. Distribute this file (ADXCSU0L 3 5 MECFGxxF.DAT). See ADX_IPGM:MECFG00F.DAT for an explanation of the Mobile Engine configuration properties.

Mobile Engine configuration for 4690

The Mobile Engine requires IBM® Java 6 and runs on the Linux side of the 4690 operating system.

Perform the following to create the Mobile Engine configuration file:

1. Create a directory, M:\mobuser, on the file server controller if it does not already exist.
2. In the M:\mobuser directory, copy the c:\adx_ipgm\mserpro.mob file to the siusermobileserver.properties configuration file. The mserpro.mob file is a sample file delivered with the Mobile Shopper package that you can use to create the production properties that the Mobile Shopper uses in the siusermobileserver.properties file.

   In the siusermobileserver.properties file, make any changes to the mobileserver.properties file for your specific environment, including networking information and controller and session information. In order to define a property, you must remove the # at the beginning of the line.

Add siusermobileserver.properties to the ADX_IPGM:mobuser.jar file. This step must be performed on the file server controller. For this step to complete

successfully, all controller processes using the ADX_IPGM:mobuser.jar file must be stopped, including Client Session Server (CSS), Data Integration Facility, and any of the controller terminals.

1. Go to each controller that is running CSS and issue the **adxcss1l stat** command to determine if CSS is running. If CSS is running on this controller, issue the **adxcss1l stop** command. Stop any background applications that might reference the Mobile Shopper files, which can include both Data Integration Facility (DIF) or the Mobile Engine running on the 4690.
2. Change to the m:\mobuser directory.
3. If ADX_IPGM:mobuser.jar exists, run: m:\java2\bin\jar -uvf adx_ipgm:mobuser.jar siusermobileserver.properties.
4. If ADX_IPGM:mobuser.jar does not exist, run: m:\java2\bin\jar -cvf adx_ipgm:mobuser.jar siusermobileserver.properties.
5. Distribute mobuser.jar by running: adxcsu0l 3 5 adx_ipgm:mobuser.jar.
6. In adx_ipgm:

   ```
   adxnszzl -c mobj6pat.zip mobuser.jar
   adxcsu01 3 5 adx_ipgm:mobj6pat.zip
   ```

   On all the controllers, run: adx_ipgm:mobj6pat.bat.
7. Restart any of the controller processes that use ADX_IPGM:mobuser.jar, including the Mobile Engine background application and CSS adxcss1l start.

SSL configuration

Communications between mobile devices and the Mobile Engine use Secure Socket Layer (SSL) by default. SSL can also be enabled for some of the other component communications as shown in Table 3 on page 34.

Table 3. SSL component communications

Communication Link	Configuration
Mobile Engine – POSBC/CSS controller	The SSL alias, ***SSL***, is used by the mobile solution (Mobile Shopper or Associate Line Busting). The ***SSL*** alias is an alias for ***AEF***. • POSBC/CSS runs the JIF server (POSBC). 1. To enable SSL in POSBC/CSS, create a `siuserssl.properties` file with **AEF.enable=true**. 2. Put the `siuserssl.properties` file in `siuser.jar`, in `C:\ADX_IPGM`. Create a `CSSJ6PAT.ZIP` file containing the `siuser.jar` and distribute it using the file distribution utility (`ADXCSU0L`). 3. On each system, run `C:\ADX_IPGM\CSSJ6PAT.BAT` to copy the files to the **F:** drive. 4. Restart CSS on the appropriate system. • Mobile Engine uses two clients – one for communicating with POSBC/CSS and the other for communicating with DIF/POSIH. Only communication between the Mobile Engine and POSBC/CSS will use SSL communication. 1. To enable SSL in the Mobile Engine client, use the same `siuserssl.properties` file with **AEF.enable=true**. 2. Put the `mobuser.jar` file in `C:\ADX_IPGM`. Create a `MOBJ6PAT.ZIP` file containing this `mobuser.jar` file and distribute it using the file distribution utility (`ADXCSU0L`). 3. On each system, run `C:\ADX_IPGM\MOBJ6PAT.BAT` to copy the files to the **F:** drive. 4. Restart the Mobile Engine on the appropriate system. **Note:** The property in the `mobileserver.properties` file that defines the ***SSL*** alias being used can be overridden. The property is: **`posbc.server.soep.ssl.alias`**`=SSL` By default, the **posbc.server.soep.ssl.alias** property points to SSL. If you want to turn off SSL from the Mobile Engine to POSBC/CSS for whatever reason, you can change the **posbc.server.soep.ssl.alias** property to point to a new alias that you will have to define in the SSL bundle as previously described.

Table 3. SSL component communications (continued)

Communication Link	Configuration
Mobile Engine – SI Mobile GUI terminal; Self-Service Scale terminal	The configuration for Mobile Engine to the Store Integrator GUIs (that is, mobile GUI and self-service scale GUI) is accomplished similarly to the configuration described previously. However, this communication uses `SISocketFactory` (still using the SSL alias ***SSL***). Configuring the SI GUIs is the last step. 1. An SSL bundle can be created with: • `C:\ADX_IDT1\rsskeys` • `C:\ADX_IDT1\rssstore` This bundle should be loaded to the root of the **Q:** drive. 2. An `siuserssl.properties` extension file that has **AEF.enable=true** should also be in an `siuser.jar` file that is in `C:\ADX_IPGM`. This jar is already included in an existing bundle for the GUI terminal. 3. Activate the terminal configuration and reload the Mobile GUI or self-service scale. **Notes:** 1. Custom SSL files (key store and trust store) must be used in a production environment. The SSL bundle would then be created with the custom SSL files (for example, **custkeys** and **custstor**). See the Store Integration (SI) documentation on SI SSL Certificate Update Instructions for details on creating and using custom SSL files, including the complete contents of the `siuserssl.properties` file. 2. The property in the `mobileserver.properties` file that defines the ***SSL*** alias being used can be overridden. The property is: **si.gui.ssl.alias**=SSL By default, the alias is SSL. If you want to turn off the SSL alias, you can change the **si.gui.ssl.alias** property to point to a new alias that you will have to define, and must also be prefixed by the new alias in the SSL bundle of Store Integrator.

Table 3. SSL component communications (continued)

Communication Link	Configuration
Mobile Engine – CHEC Self-Service Pay Station terminal	The configuration for the Mobile Engine to the CHEC self-service pay station GUI is completed like the configuration for POSBC/CSS and Mobile Engine described previously. This communication also uses `SISocketFactory` (still using the SSL alias ***SSL***). Configuring the self-service pay station GUI terminal definition is all that is the last step. 1. Create jar file `C:\ADX_IDT1\ mobstore.jar` file which contains an `siuserssl.properties` extension file with the following properties: • `AEF.enable=true` • `AEF.KeyFileName=/cdrive/f_drive/rsskeys` • `AEF.TrustFileName=/cdrive/f_drive/rssstore` 2. A new SSL preload bundle should be created with the following: • `C:\ADX_IDT1\rsskeys` • `C:\ADX_IDT1\rssstore` • `C:\ADX_IDT1\mobstore.jar` (that was created in the previous step) This new bundle should be loaded in the root of the **F:** drive in the self-service pay station terminal load definition. 3. Activate the terminal configuration and reload the CHEC self-service pay station. **Notes:** 1. Custom SSL files (key store and trust store) must be used in a production environment. The `siuserssl.properties` in `mobstore.jar` would have, for example, **AEF.KeyFileName=/cdrive/f_drive/custkeys** and **AEF.TrustFileName=/cdrive/f_drive/custstor**. The SSL preload bundle would then be created with the custom SSL files (for example, **custkeys** and **custstor**). See the Store Integrator (SI) documentation on SI SSL Certificate Update Instructions for details on creating and using custom SSL files, including the complete contents of the `siuserssl.properties` file. 2. The property in the `mobileserver.properties` file that defines the ***SSL*** alias being used can be overridden. The property is: **`si.gui.ssl.alias`**`=SSL` By default, the alias is SSL. If you want to turn off the SSL alias, you can change the **si.gui.ssl.alias** property to point to a new alias that you will have to define, and must be prefixed by the new alias in the SSL bundle of Store Integrator.

Running the Mobile Engine

The Mobile Engine is run by the Mobile Engine Launcher background task on 4690. The Mobile Engine Launcher must be set up one time on the 4690 controller where the Mobile Engine runs. The Mobile Engine can be controlled from the command line.

Setting up the Mobile Engine Launcher background task

Edit the controller configuration to add a background task for the controller that runs on the Mobile Engine. From the 4690 Main Menu, do the following:

1. Select **'4' - Installation and Update Aids**.
2. Select **'1' - Change Configuration Data**.
3. Select **'2' - Controller Configuration**.
4. Press **Enter** to continue past the LAN Configuration in a single controller configuration. In a multi-controller configuration, go to the controller configuration screen for the controller where the Mobile Engine will be running.
5. Place an **X** next to Background Application.
6. Select **1** next to Define a Background Application.
7. Fill in the necessary information as shown Figure 10.

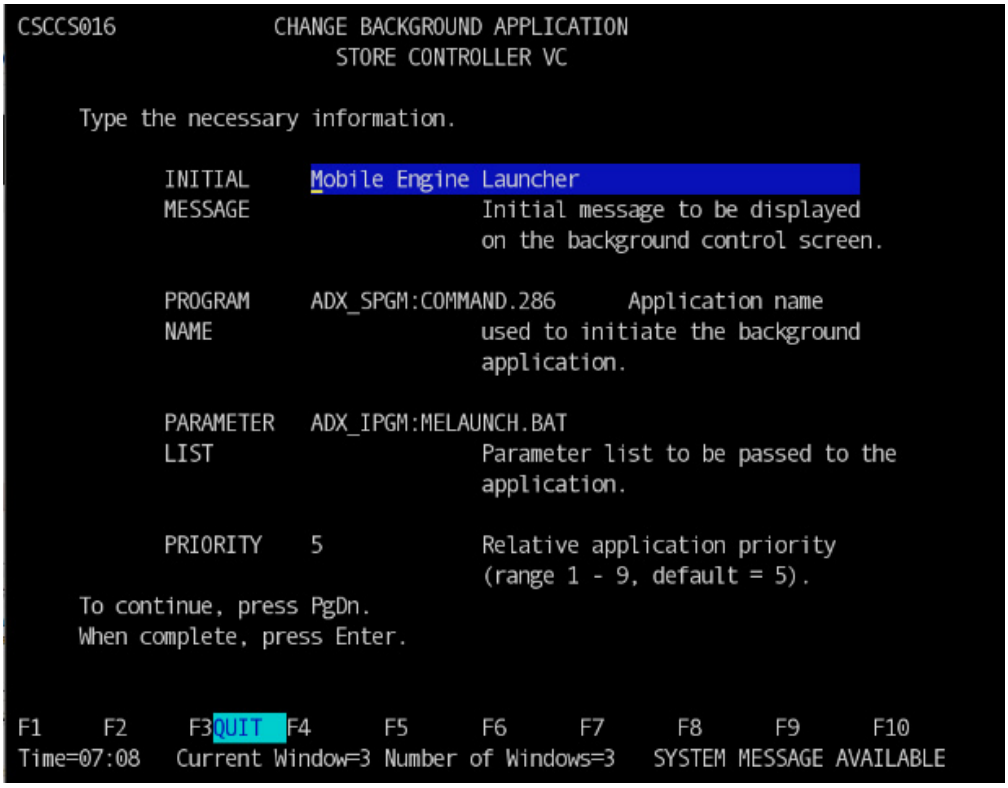
CSCCS016 CHANGE BACKGROUND APPLICATION
STORE CONTROLLER VC
Type the necessary information.
INITIAL MESSAGE Mobile Engine Launcher
Initial message to be displayed on the background control screen.
PROGRAM NAME ADX_SPGM:COMMAND.286
Application name used to initiate the background application.
PARAMETER LIST ADX_IPGM:MELAUNCH.BAT
Parameter list to be passed to the application.
PRIORITY 5
Relative application priority (range 1 - 9, default = 5).
To continue, press PgDn.
When complete, press Enter.
F1 F2 F3 QUIT F4 F5 F6 F7 F8 F9 F10
Time=07:08 Current Window=3 Number of Windows=3 SYSTEM MESSAGE AVAILABLE

Figure 10. Change background application

8. Press **PgDn** and select **Y** to start the background task on IPL.

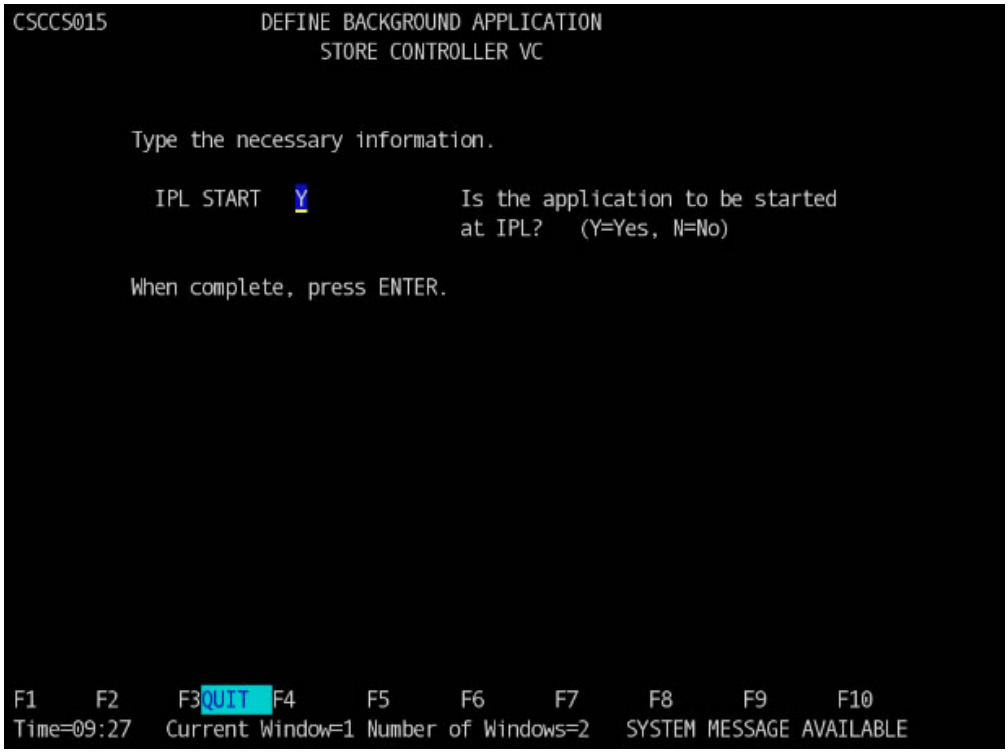
CSCCS015 DEFINE BACKGROUND APPLICATION
STORE CONTROLLER VC
Type the necessary information.
IPL START Y Is the application to be started
at IPL? (Y=Yes, N=No)
When complete, press ENTER.
F1 F2 F3QUIT F4 F5 F6 F7 F8 F9 F10
Time=09:27 Current Window=1 Number of Windows=2 SYSTEM MESSAGE AVAILABLE

Figure 11. Define background application

In a multi-controller system, select **Yes** to 'Start when master', 'Start when not master', 'Start when file server', and 'Start when not file server'. Press **ENTER** to complete background task definition.

9. Press **F3** to go back to the Configuration menu and select **4 - Activate Configuration**.
10. Select **2 - Controller Configuration**.
11. After the activation completes, reboot the controller.

Controlling the Mobile Engine

The Mobile Engine can be controlled using the **MEMANAGE** command found in `ADX_IPGM`. Figure 12 on page 39 shows the function that **MEMANAGE** provides:

```
C:/ADX_IPGM/>memanage

C:/ADX_IPGM/>ECHO OFF

Usage:  MEMANAGE command
Manage the mobile engine running on this controller.

Command is one of...
       start   Start the mobile engine.  If it is already started, no
               action is taken.
       stop    Stop the mobile engine.  If it is already stopped, no
               action is taken.
       restart Restart the mobile engine.  If it is not running,
               start it.
       status  Display the running status of the mobile engine.
       role    Display the configured role (associate or consumer) of
               the mobile engine.



C:/ADX_IPGM/>
```

Figure 12. MEMANAGE command

Troubleshooting the Mobile Engine

Logs from the Mobile Engine Launcher and the Mobile Engine are located in the `f:\mobile\logs` directory. The log files located here are useful to service personnel.

Configuring Client Server Session for the Mobile Shopper

If you already have a `C:\adx_idt1\aefio.xml` file, merge the `C:\adx_imnt\aefio.mob` with your existing `aefio.xml` file to include the self-service scale (SSScale) entries. Otherwise, the mobile installation will install a file for you.

Note: If the `aefio.xml` file did not exist prior to the mobile installation, the size of the `C:\adx_idt1\aefio.xml` and `C:\adx_idt1\aefio.mob` will be the same.

Mobile Shopper operator sign-on credentials for ACE

For the Mobile Shopper ACE environment, you must configure the operator IDs and passwords for all of your mobile terminals in both ACE Data Maintenance and the `si*logon.properties` bundle. Make sure the mobile operators are authorized for all necessary terminal functions and procedures, such as, No-Sale Price Verify and Training Mode.

Ensure the Birth Date for all mobile operators is defined as `1/1/1960` (**Data Maintenance --> Operator Authorization Records --> Personal --> Birth Date**).

The self-service scale user IDs and passwords require a specific format and can be obtained from your Toshiba engagement representative.

ACE input state table changes

The state table EAMS@000 must be changed so that function code 241 can accept data. This function code is used for TLOG logging by the Mobile Engine in ACE. If this function code is not already added for `state 10`, then it should be added as a common function code defined in `state 10` (MAIN). The attributes of the function code are the same as the attributes for function code 63 (DATA ENTRY), see the diagrams starting with Figure 13 through Figure 20 on page 44. You should make these changes regardless of the Mobile Shopper or Associate Line Busting solutions.

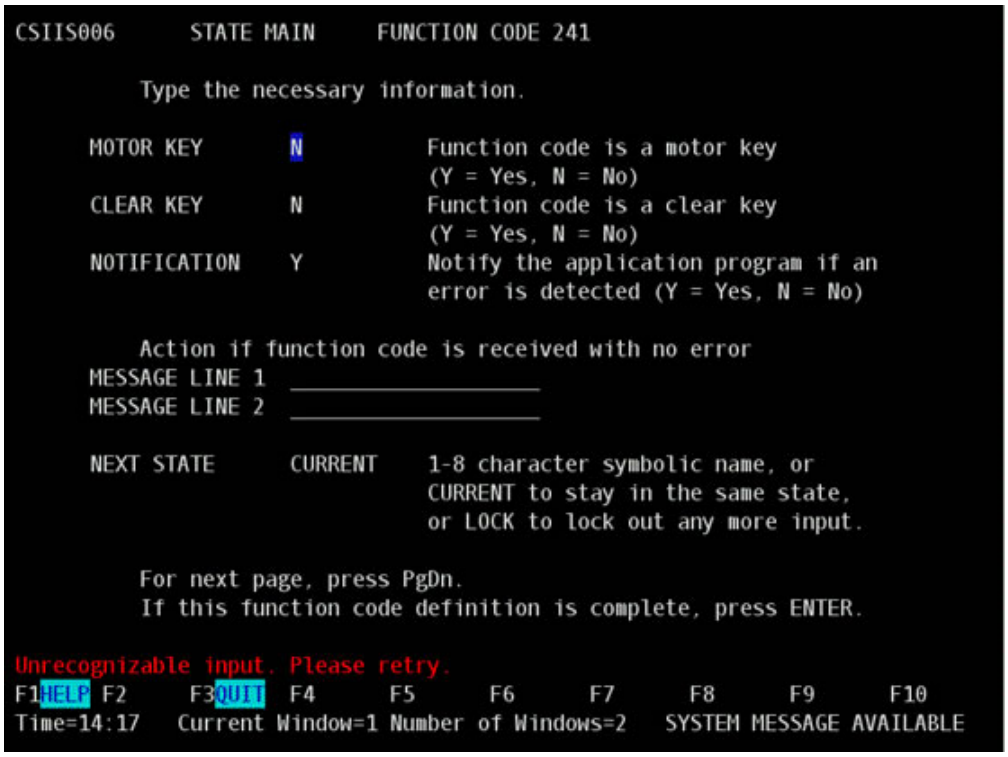
CSIIS006 STATE MAIN FUNCTION CODE 241
Type the necessary information.
MOTOR KEY N Function code is a motor key
(Y = Yes, N = No)
CLEAR KEY N Function code is a clear key
(Y = Yes, N = No)
NOTIFICATION Y Notify the application program if an
error is detected (Y = Yes, N = No)
Action if function code is received with no error
MESSAGE LINE 1
MESSAGE LINE 2
NEXT STATE CURRENT 1-8 character symbolic name, or
CURRENT to stay in the same state,
or LOCK to lock out any more input.
For next page, press PgDn.
If this function code definition is complete, press ENTER.
Unrecognizable input. Please retry.
F1HELP F2 F3QUIT F4 F5 F6 F7 F8 F9 F10
Time=14:17 Current Window=1 Number of Windows=2 SYSTEM MESSAGE AVAILABLE

Figure 13. Attributes for function code 241 (1 of 8)

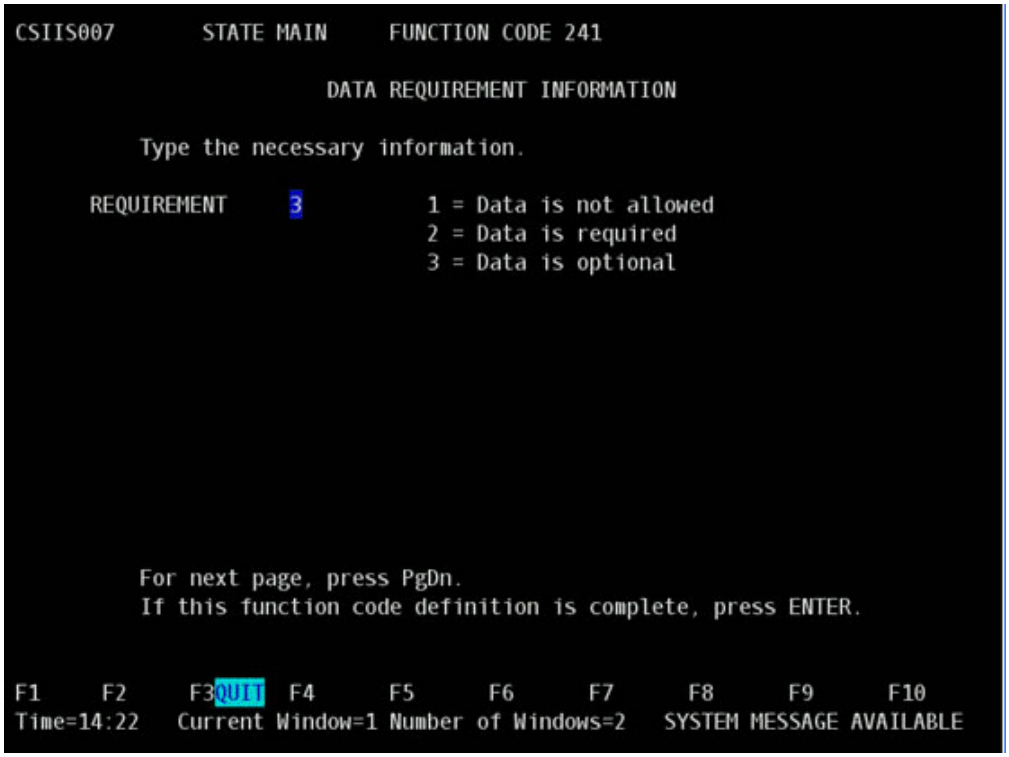
CSIIS007 STATE MAIN FUNCTION CODE 241
DATA REQUIREMENT INFORMATION
Type the necessary information.
REQUIREMENT 3
1 = Data is not allowed
2 = Data is required
3 = Data is optional
For next page, press PgDn.
If this function code definition is complete, press ENTER.
F1 F2 F3QUIT F4 F5 F6 F7 F8 F9 F10
Time=14:22 Current Window=1 Number of Windows=2 SYSTEM MESSAGE AVAILABLE

Figure 14. Attributes for function code 241 (2 of 8)

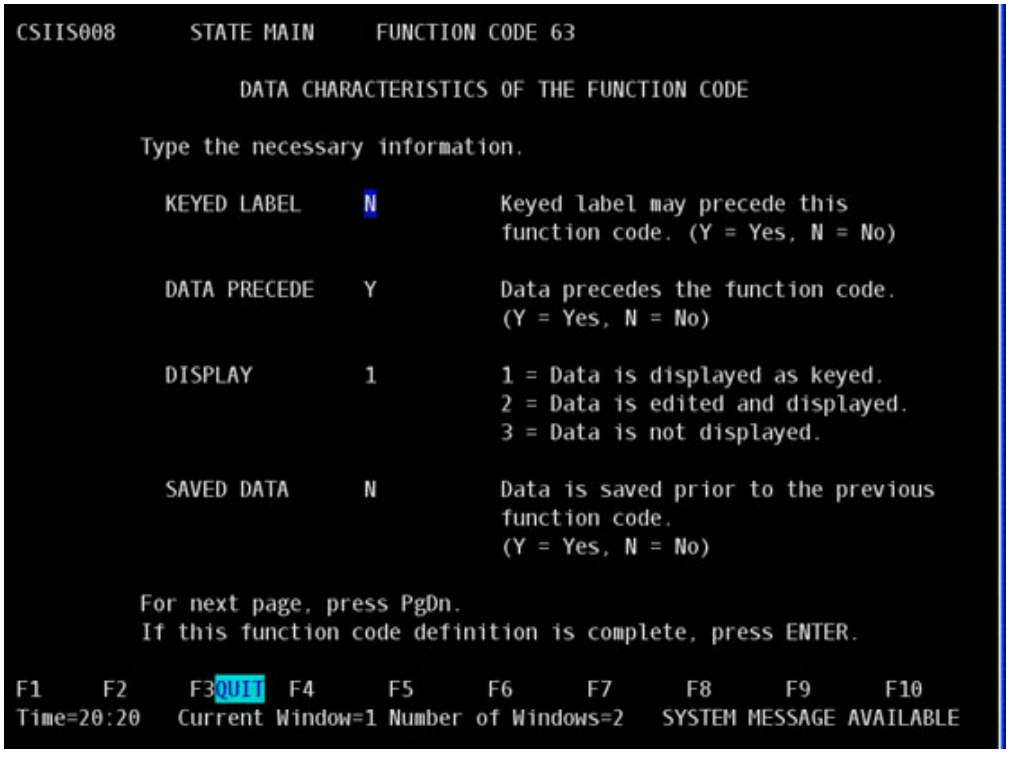
CSIIS008 STATE MAIN FUNCTION CODE 63
DATA CHARACTERISTICS OF THE FUNCTION CODE
Type the necessary information.
KEYED LABEL N
Keyed label may precede this function code. (Y = Yes, N = No)
DATA PRECEDE Y
Data precedes the function code. (Y = Yes, N = No)
DISPLAY 1
1 = Data is displayed as keyed.
2 = Data is edited and displayed.
3 = Data is not displayed.
SAVED DATA N
Data is saved prior to the previous function code.
(Y = Yes, N = No)
For next page, press PgDn.
If this function code definition is complete, press ENTER.
F1 F2 F3QUIT F4 F5 F6 F7 F8 F9 F10
Time=20:20 Current Window=1 Number of Windows=2 SYSTEM MESSAGE AVAILABLE

Figure 15. Attributes for function code 241 (3 of 8)

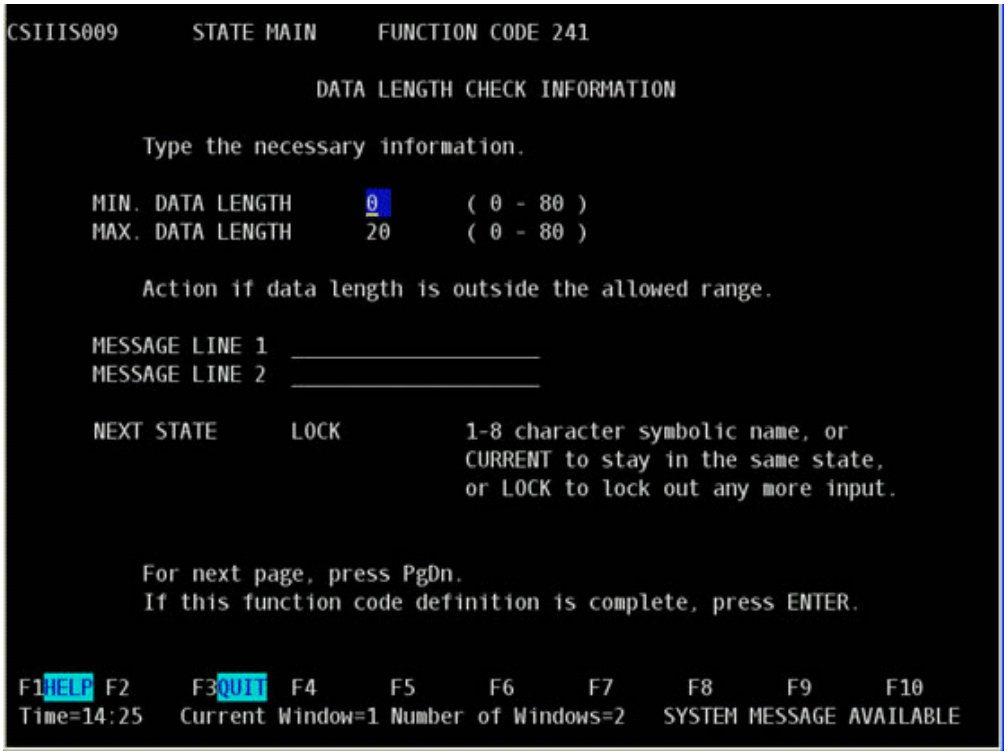
CSIIIS009 STATE MAIN FUNCTION CODE 241
DATA LENGTH CHECK INFORMATION
Type the necessary information.
MIN. DATA LENGTH 0 (0 - 80)
MAX. DATA LENGTH 20 (0 - 80)
Action if data length is outside the allowed range.
MESSAGE LINE 1
MESSAGE LINE 2
NEXT STATE LOCK 1-8 character symbolic name, or
CURRENT to stay in the same state,
or LOCK to lock out any more input.
For next page, press PgDn.
If this function code definition is complete, press ENTER.
F1HELP F2 F3QUIT F4 F5 F6 F7 F8 F9 F10
Time=14:25 Current Window=1 Number of Windows=2 SYSTEM MESSAGE AVAILABLE

Figure 16. Attributes for function code 241 (4 of 8)

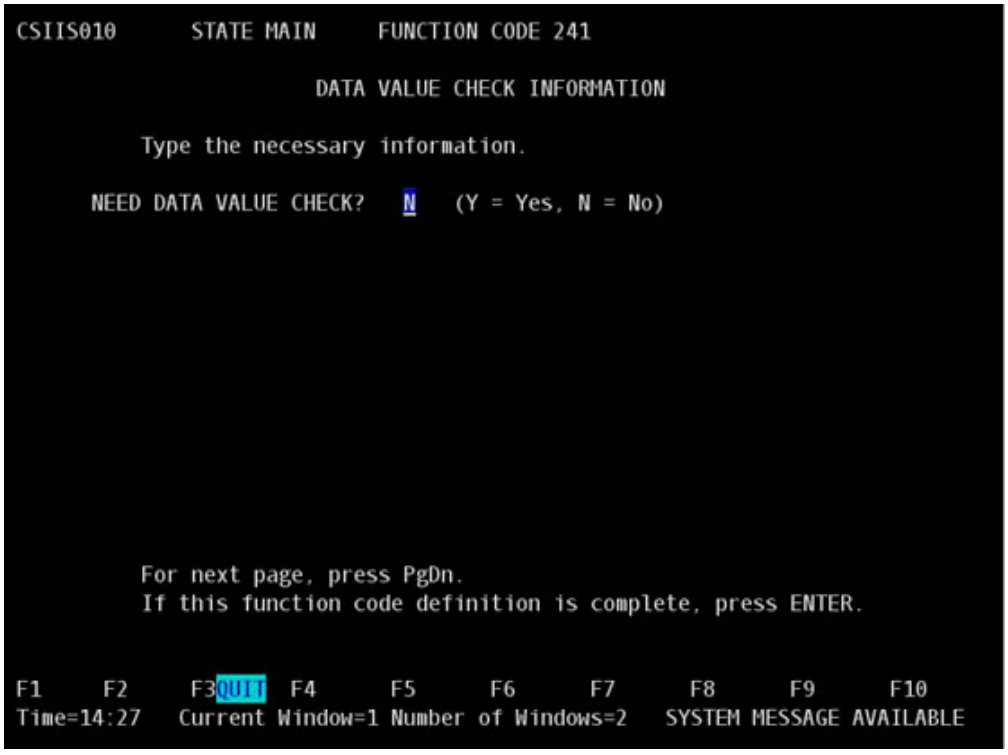
CSIIS010 STATE MAIN FUNCTION CODE 241
DATA VALUE CHECK INFORMATION
Type the necessary information.
NEED DATA VALUE CHECK? N (Y = Yes, N = No)
For next page, press PgDn.
If this function code definition is complete, press ENTER.
F1 F2 F3QUIT F4 F5 F6 F7 F8 F9 F10
Time=14:27 Current Window=1 Number of Windows=2 SYSTEM MESSAGE AVAILABLE

Figure 17. Attributes for function code 241 (5 of 8)

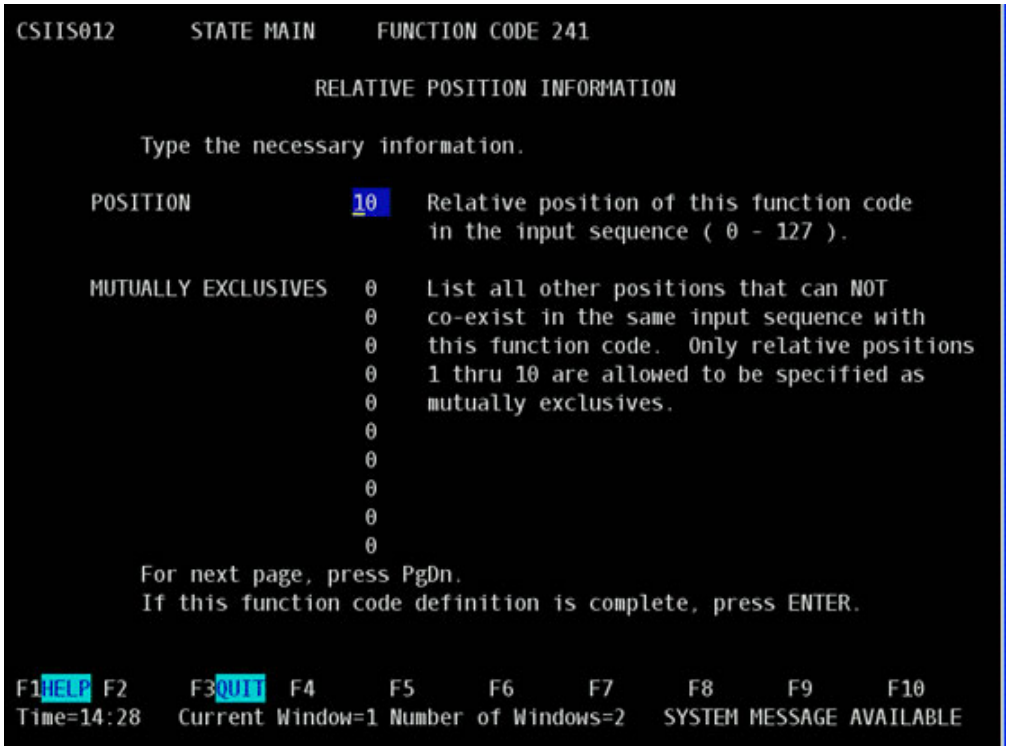
CSIIS012 STATE MAIN FUNCTION CODE 241
RELATIVE POSITION INFORMATION
Type the necessary information.
POSITION 10 Relative position of this function code in the input sequence (0 - 127).
MUTUALLY EXCLUSIVES 0 List all other positions that can NOT co-exist in the same input sequence with this function code. Only relative positions 1 thru 10 are allowed to be specified as mutually exclusives.
0
0
0
0
0
0
0
For next page, press PgDn.
If this function code definition is complete, press ENTER.
F1HELP F2 F3QUIT F4 F5 F6 F7 F8 F9 F10
Time=14:28 Current Window=1 Number of Windows=2 SYSTEM MESSAGE AVAILABLE

Figure 18. Attributes for function code 241 (6 of 8)

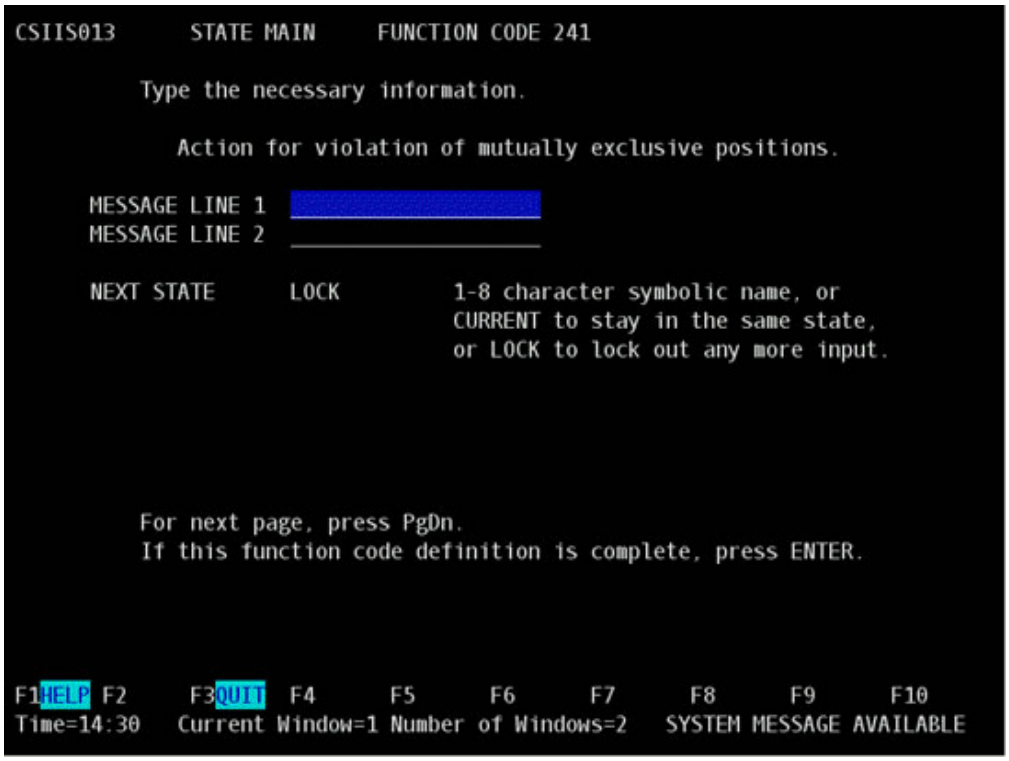
CSIIS013 STATE MAIN FUNCTION CODE 241
Type the necessary information.
Action for violation of mutually exclusive positions.
MESSAGE LINE 1
MESSAGE LINE 2
NEXT STATE LOCK 1-8 character symbolic name, or CURRENT to stay in the same state, or LOCK to lock out any more input.
For next page, press PgDn.
If this function code definition is complete, press ENTER.
F1HELP F2 F3QUIT F4 F5 F6 F7 F8 F9 F10
Time=14:30 Current Window=1 Number of Windows=2 SYSTEM MESSAGE AVAILABLE

Figure 19. Attributes for function code 241 (7 of 8)

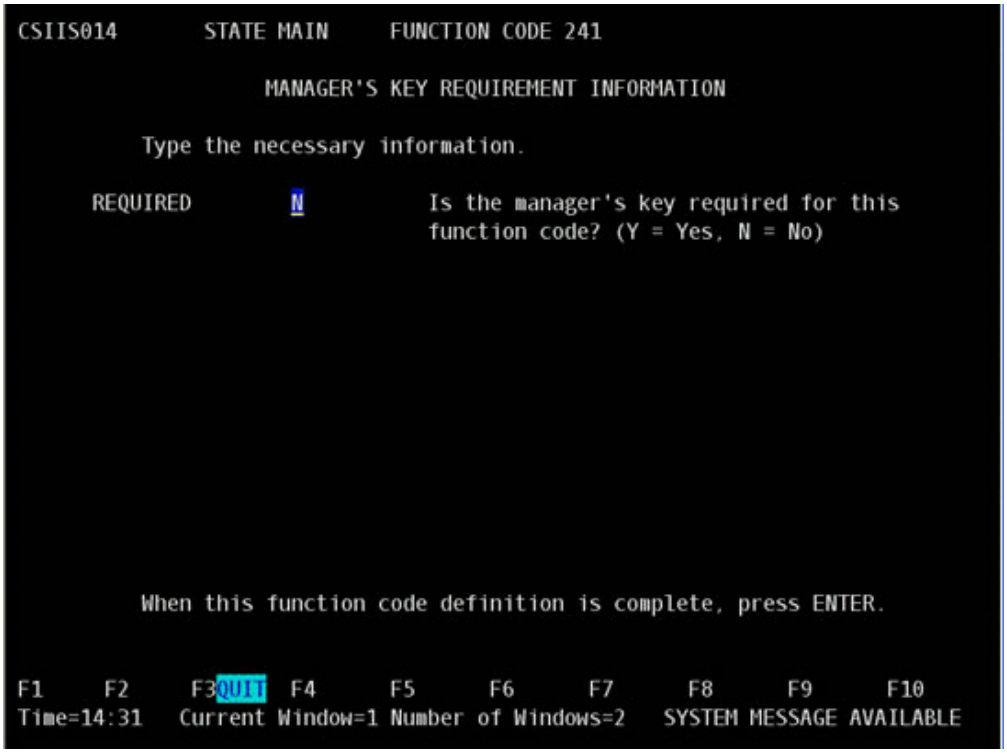
CSIIS014 STATE MAIN FUNCTION CODE 241
MANAGER'S KEY REQUIREMENT INFORMATION
Type the necessary information.
REQUIRED N Is the manager's key required for this function code? (Y = Yes, N = No)
When this function code definition is complete, press ENTER.
F1 F2 F3QUIT F4 F5 F6 F7 F8 F9 F10
Time=14:31 Current Window=1 Number of Windows=2 SYSTEM MESSAGE AVAILABLE

Figure 20. Attributes for function code 241 (8 of 8)

Client Session Server configuration

The Client Session Server (CSS) in a mobile shopper environment must use a modified launch command. Starting with Store Integrator V3 R5, the launch command filename can be specified in the `C:\ADX_IPGM\ADXAExxF.dat` file (where ***xx*** is the controller ID), using the property file `css.launchFileName`.

Toshiba TCxAmplify V1 R1 supplies a CSS launch command file for the mobile environment named `C:\ADX_IPGM\AEFVIRT.MO6`.

Note: CSS in a mobile environment will run in the Java 6 JVM.

Standard output and error stream file locations should specify (using the property `css.stdStreamsDir`) when CSS runs in the Java 6 JVM to a location on the **f:** drive. Use `f:/si/logs` as the location of the standard output and error stream files so that the captured files are located with the CSS runtime log files. See the following example from an `ADXAExxF.DAT` file:

```
css.launchFileName=ADX_IPGM:aefvirt.mo6
css.stdStreamsDir=f:/si/logs
```

Note: The TCxAmplify installation will always replace the `ADX_IPGM:aefvirt.mo6` file. If the customer has modified this file, it is important that they save a copy of their modified `ADX_IPGM:aefvirt.mo6` file prior to a new TCxAmplify installation in order to make the same modifications to the newly-installed version.

Terminal configurations for the Mobile Shopper

Configuring Store Integration GUI terminals on 4690 OS

Sample files are included on the TCxAmplify Installation CD in the /4690/GUI directory. These files are in application-specific directories, for example, the /4690/GUI/ACE directory.

The following files are found in each application-specific /4690/GUI folder:

- JAVAAPP.XML
- PRELOAD.XML

The following files are found on the Store Integrator installation CD in the 4690/GUI/ACE folder:

- SAVECFG.BAT
- RESTCFG.BAT

The JAVAAPP.XML file contains sample Java applications for the various terminal configurations. Each character in the application name represents one part of the application's configuration. The list in Table 4 describes what each character means.

Table 4. JAVAAPP.XML sample Java applications

Terminal configuration	Characters
POS application	**[A|S|G|O]** (ACE, SA, GSA or Other)
Terminal type	**[T|C]** (Stand-alone Terminal or Controller/Terminal)
Display configuration	**[O|C|D|S]** (Operator, Customer, Dual Display, and Self-Service Scale)
Heap size	**[S|M]** (Small-68M, Medium-96M)
Mobile extensions	**[M]** (Mobile)

Note: For example, ***ATOMM*** represents an ACE terminal, operator display, and a medium-sized heap for use with the Silver Theme for the TCxAmplify Mobile Shopper GUI.

For more information, refer to the *Toshiba Store Integrator User's Guide (V3 R5)*, in the section that discusses using OS 4690 advanced Java configuration and bundling instead of .RSP files for the Store Integrator GUI application. This section gives guidance on importing the Store Integrator GUI Java application and the preload bundle samples. The same instructions will apply to importing the sample TCxAmplify Java application definitions and preload bundle definitions.

Configuration changes for a stand-alone Mobile Store Integrator GUI terminal

To change the configuration of a Store Integrator GUI stand-alone terminal, complete the following steps:

1. Go to the Device Characteristics for the TCxAmplify SI GUI Terminal window:
   a. Select **RAM** disks.
      1) Select the **Q** disk only.
      2) Enter the disk size (minimum of 85 or 5 MB larger than current non-mobile store configuration).

b. Select **Java Redirection**, and then select **Enable Advanced Java Redirection**.
   1) Select **Advanced Java Redirection**, and then select the following:
      ANDISPLAY
      ANDISPLAY2
      I/O Processor and Tone

c. **Serial Devices**:
   1) Port A: Logical Port 1
   2) Port B: Logical Port 2 (If you are using the Toshiba BEV4 label printer, its default port is COM 2. If you need to use COM 1, change your `mobileserver.properties` value for `label.printer.portID` to COM 1.)
   3) First Additional Port: Disabled
   4) Second Additional Port: Disabled
   5) Third Additional Port: Disabled
   6) Fourth Additional Port: Disabled

d. **Video Display**:
   1) Character format: 25 lines by 80 characters
   2) Graphics format: 1024 by 768
   3) Color format: Maximum available (64K or more)
   4) Screen saver: Enabled
   5) System display: Yes

2. Go to Load definitions:
   a. Select the terminal you want to change.
   b. Select **Java Applications**.
   c. For the "Select the type of Java application to configure:" choice, select **Java 2**.
   d. Select the primary application that matches the configuration you are running (TCxAmplify operator GUI or Dual Display GUI {ATOMM or other applications}).
   e. Change the preload drive to **Q**.
   f. Save your changes and exit.
3. Select **JVM preload** from the left hand side of the screen.
   a. Ensure you change the **JVM preload** drive value to **Q** or **M**.
   b. The **M** drive can only be used if you have a hard drive in the terminal.
   c. Selecting **Q** will cause the JVM to be preloaded to the Enhanced RAM disk instead of the terminal hard-drive.
   d. Save your changes and exit.
4. Select **Preload Bundles** from the left hand side of the screen.
   a. Change the drive letter to **Q**.
   b. Select the bundles from the left hand side to the right hand side of the screen.

      The bundles are:
      PRO
      SVUSER
      ACEJARS
      ELITE (optional)

4690JARS
AEFJARS
COMMON
POSBC
THEME (or whatever bundle you created to contain the SILVER.JAR)
MOBGUI

c. Save your changes and exit.

5. Activate the terminal configuration and reload the terminals.

Note: Whenever a `*.JAR` file, `*.ZIP` file, or `*.PRO` file contained in any of your defined preload bundles is modified by replacing it on the system, you must run `ADXPLDRB` in command mode before reloading the terminals.

Configuration changes for controller/terminals: Mobile Store Integrator GUI

To change the configuration for a controller/terminal, complete the following steps:

1. Go to the Device Characteristics for the TCxAmplify SI GUI Terminal window:
   a. Select **Java Redirection**, select **Enable Advanced Java Redirection**.
   b. Select **Advanced Java Redirection**, and select **Use default Advanced Java Redirection Settings**.
2. Go to Load definitions:
   a. Select the terminal you want to change.
   b. Select **Java Applications**.
   c. For the "Select the type of Java application to configure:" choice, select **Java 2**.
   d. Select the primary application (ACOMM).
   e. Change the preload drive to **C**.
   f. Save your changes and exit.
3. Select **JVM preload** from the left hand side of the screen.
   a. Change the JVM preload drive to **M**.
   b. Save your changes and exit.
4. Activate the terminal configuration and reload the controller/terminals.

Configuration changes for a stand-alone Self-Service Scale terminal

Shoppers use the Mobile Shopper self-service scale to enter weight required items into their mobile transaction while they are in the produce section of the store. These scales are 4690 terminals that are *repurposed* to be a "weights and measure" certified scale for adding weighted items to the mobile transaction.

To change the configuration of a self-service scale stand-alone terminal, complete the following steps:

1. Go to the Device Characteristics for the TCxAmplify Self-Service Scale terminal:
   a. Select **RAM** disks.
   b. Select the **Q** disk only.
   c. Enter the disk size (75 to 100 MB is usually enough).
      1) Select **Java Redirection**, and select **Enable Advanced Java Redirection**.
      2) Select **Advanced Java Redirection**, and select the following:

ANDISPLAY
ANDISPLAY2
I/O Processor and Tone
Printer Handler

d. Save your changes and exit.

2. Go to Load definitions:
   a. Select the terminal you want to change.
   b. Select **Java Applications**.
   c. For the "Select the type of Java application to configure:" choice, select **Java 2**.
   d. Select the primary application that matches the configuration you are running (TCxAmplify self-service scale {ATSMM}).
   e. Change the preload drive to **Q**.
   f. Save your changes and exit.
3. Select **JVM preload** from the left hand side of the screen.
   a. Ensure you change the **JVM preload** drive value to **Q** or **M**.
   b. The **M** drive can only be used if you have a hard drive in the terminal.
   c. Selecting **Q** will cause the JVM to be preloaded to the Enhanced RAM disk instead of the terminal hard-drive.
   d. Save your changes and exit.
4. Select **Preload Bundles** from the left hand side of the screen.
   a. Change the drive letter to **Q**.
   b. Select the bundles from the left hand side to the right hand side of the screen.

      The bundles are:

      PRO
      SVUSER
      ACEJARS
      ELITE (optional)
      4690JARS
      AEFJARS
      COMMON
      POSBC
      THEME (or whatever bundle you created to contain the SILVER.JAR)
      MOBSSS

   c. Save your changes and exit.
5. Activate the terminal configuration and reload the terminals.

Note: Whenever a `*.JAR` file, `*.ZIP` file, or `*.PRO` file contained in any of your defined preload bundles is modified by replacing it on the system, you must run `ADXPLDRB` in command mode before reloading the terminals.

Configuration changes for a Self-Service Pay Station terminal

To enable CHEC Mobile configuration for a Self Service Pay Station, complete the following steps:

1. From Generic Terminal Configuration, select **Load Definitions**.
2. Select the **Self-Service Pay Station terminal**, then edit it.

3. Select **Extensions**.
4. Select the check box for **CHEC Mobile (ADXXTDAE.DAT)**.
5. Select **Preload Bundles** from the left hand side of the screen, and then:
   a. Change the drive letter to **F**.
   b. Select the **MOBCHEC bundle** from the left hand side to the right hand side of the screen.
6. Select **Save**, and then exit.
7. Activate the terminal configuration and reload the terminals.

By default, the Mobile Extensions allow the CHEC lane to function as a normal self checkout, as well as, a Mobile retrieval pay station. You can disable the mobile configuration from your CHEC lane or force the CHEC lane to operate as Mobile Only (that is, Mobile retrieval required to start a transaction). Changing this behavior requires the following configuration on the Back Office System Server (BOSS):

1. Select **Start/ALL Programs/Toshiba Checkout Environment for Consumer-Service/Configure BOSS and Lanes**.
2. Select the **Asset layer** from the left side of the window, and the terminal number you would like to edit from the right side.
3. Select the **Integration Options** tab.
4. There are two configurations related to the Mobile Extensions:
   a. **EnableMobileHandling** - Choosing **False** for **EnableMobileHandling** will disable all the mobile features and the lane will function as a normal CHEC lane.
   b. **Allow Item Scan First** - Choosing **False** for the **Allow Item Scan First** option will force the lane to be Mobile Only. This means you will be required to retrieve orders from the mobile device to start a transaction. The lane will function like a normal CHEC lane after the mobile order has been retrieved.

For more information on the CHEC configuration tool, refer to *Toshiba Checkout Environment for Consumer-Service Software Planning, Installation, and Maintenance Guide Version 6.7*.

Configuration changes for controller/terminals: Self-Service Scale

To change the configuration for a controller/terminal, complete the following steps:

1. Go to the Device Characteristics for the TCxAmplify Self-Service Scale controller/terminal:
   a. Select **Java Redirection**, and select **Enable Advanced Java Redirection**.
   b. Select **Advanced Java Redirection**, and select the following:
      ANDISPLAY
      ANDISPLAY2
      I/O Processor and Tone
      Printer Handler
   c. Save your changes and exit.
2. Go to Load definitions:
   a. Select the terminal you want to change.
   b. Select **Java Applications**.
   c. For the "Select the type of Java application to configure:" choice, select **Java 2**.
   d. Select the primary application (ACSMM).

e. Change the preload drive to **C**.
f. Save your changes and exit.

3. Select **JVM preload** from the left hand side of the screen.
   a. Change the JVM preload drive to **M**.
   b. Save your changes and exit.
4. Activate the terminal configuration and reload the controller/terminals.

Important Note: After successfully loading your terminals or controllers, you may (optionally) change the Java Application Advanced characteristics and remove the entries for Redirected `STDERR` and `STDOUT`. If you do not remove these entries, the `STDERR` and `STDOUT` files in the `SILOGS` directory will grow forever. You should continue to redirect the `STDERR` file, this file can be used in problem determination. After making a change to either the `STDOUT` or `STDERR` redirection files, Terminal Configuration Activation is required.

ACE Personalization option changes

This section describes the ACE Personalization configuration for the store, the self-service scale, mobile sessions, the mobile SI GUI, and the self-service pay station.

ACE store options

Use these table descriptions to configure the following store options.

Table 5. Mapping quantity barcode options

SurePOS ACE option location	SurePOS ACE option name	Details
Options -> Barcode -> Formats	ID	Use the next ID for your options. **Note:** Do not use ID 46 or 47. If your last ID is 45, use 48 or later (skip 46 and 47).
	Description	SSScale Quantity
	In use	Enabled
	Family	3=EAN
	Format	00IIIIIIIIIIIIIIAAAAQQQQ
	Lookup Key Format	IIIIIIIIIIIII
	Is Coupon?	Disabled

Table 6. Mapping weight barcode options

SurePOS ACE option location	SurePOS ACE option name	Details
Options -> Barcode -> Formats	ID	Use the next ID for your options. **Note:** Do not use ID 46 or 47. If your last ID is 45, use 48 or later (skip 46 and 47).
	Description	SSScale Weight
	In use	Enabled
	Family	3=EAN
	Format	10IIIIIIIIIIIIIIIWWWW0000

Table 6. Mapping weight barcode options (continued)

SurePOS ACE option location	SurePOS ACE option name	Details
	Lookup Key Format	IIIIIIIIIIIII
	Is Coupon?	Disabled

Table 7. Mapping store options

SurePOS ACE option location	SurePOS ACE option name	Details
Options-> Store-> Suspend/Retrieve	Use Suspend/Retrieve barcode	Enabled
Options-> Store-> Suspend/Retrieve	Allow Local Suspend/Retrieve	Enabled

Self-Service Scale options for ACE

Create terminal-specific or terminal group options for each of the terminals or terminal groups that will be running the self-service scale.

Table 8. Mapping SurePOS ACE options for Self-Service Scale

SurePOS ACE option location	SurePOS ACE option name	Details
Options -> Security -> Manager IDs	Mgr ID	Add 373737
Options -> Security -> Manager IDs	Manager's key needed	Disabled
Options -> Security -> Item Entry2	Quantity required items bypass B029 prompt	Enabled
Options -> Department Groups	Maximum keyed quantity limits	+++ +++ +++
Options -> Tender -> Generic	Void transaction limit	99999.99
Options -> Tender -> Generic	Exchange transaction limits	+++ +++ +++
Options -> Store -> Coin Dispenser	Current® selection	0
Options -> Weight/Volume -> Limits	Type of override required to accept same weight as previous item	0
Loyalty -> General -> ID Entry	Type of override required for keyed customer ID	0
Loyalty -> General -> ID Entry	Type of override required for new customer ID	0
EPS -> Device -> PIN Pad Config	PIN pad type	0

Note: The label printer for the self-service scale must be plugged in to Logical Port 2 (Serial Port B in most cases). If not, change the `label.printer.portID` property in `siusermobileserver.properties` to match the setting defined in your Device Characteristics for the self-service scale.

Mobile session options for ACE

Create terminal-specific or terminal group options for each of the terminals or terminal groups that will be running the Client Session Server (CSS) sessions for mobile shoppers.

Table 9. Mapping SurePOS ACE options for mobile sessions

SurePOS ACE option location	SurePOS ACE option name	Details
Options -> Security -> Manager IDs	Mgr ID	Add 373737
Options -> Security -> Manager IDs	Manager's key needed	Disabled
Options -> Security -> Item Entry2	Quantity required items bypass B029 prompt	Enabled
Options -> Security -> Voids	Prompt for reason code when Void key pressed	Disabled
Options -> Department Groups	Maximum keyed quantity limits	+++ +++ +++
Options -> Tender -> Generic	Void transaction limit	99999.99
Options -> Tender -> Generic	Exchange transaction limits	+++ +++ +++
Options -> Store -> Suspend/Receive	Suspend needs manager's override	Disabled
Options -> Store -> Coin Dispenser	Current selection	0
Options -> Weight/Volume -> Limits	Type of override required to accept same weight as the previous item	0
Options -> Restricted Sales -> General	Re-check Periods Before Tender	0
Print -> Sales Receipt -> Digital Receipt	Enable Digital Receipt Support to generate format: Image copy	Disabled
Print -> Sales Receipt -> Digital Receipt	Enable Digital Receipt Support to generate format: Semantic copy	Disabled
EPS -> Device -> PIN Pad Config	PIN pad type	0
Loyalty -> General -> ID Entry	Type of override required for keyed customer ID	0
Loyalty -> General -> ID Entry	Type of override required for new customer ID	0
Options tender-> TDR Limits **Note:** This option should be set for all tenders.	Auto loan amount	0.00
Options-> Store -> Devices	Auto Sign Off Idle Time	9999.99
Options-> Store -> Devices	Auto Subtotal Time Period	0

Mobile SI GUI options for ACE

Create terminal-specific or terminal group options for each of the terminals or terminal groups that will be running the Mobile SI GUI.

Table 10. Mapping SurePOS ACE options for Mobile SI GUI

SurePOS ACE option location	SurePOS ACE option name	Details
Options-> Restricted Sales-> General	Re-check Periods Before Tender	1

Self-Service Pay Station options for ACE

Create terminal-specific options or terminal group options for each of the terminals that will run the self-service pay station (CHEC).

Table 11. Mapping of SurePOS ACE options for the Self-Service Pay Station

SurePOS ACE option location	SurePOS ACE option name	Details
Options -> Store -> Self Checkout	Terminal function	1: Self Checkout
Options -> Store -> Self Checkout	Version	1: Store Integrator
Options -> Store -> Suspend/Retrieve	Use suspend/retrieve barcode	Enabled
Options -> Store -> Suspend/Retrieve	Maximum number of suspended transactions per terminal	999
Options -> Store -> Suspend/Retrieve	Suspend needs manager's override	Disabled
Options -> Store -> Suspend/Retrieve	Retrieve needs manager's override	Disabled
Options -> Store -> Devices	Auto sign off idle time	9999.99
Options -> Store -> Coin Dispenser	Current selection	0
Options -> Store -> Food Stamps/Tax	Prompt for Eat-in or Take-out	Disabled
Options -> Security -> Manager's ID	Mgr ID	Add 373737
Options -> Security -> Manager's ID	Manager's Key Needed	Disabled
Options -> Weight/Volume -> Limits	Type of override required to accept same weight as previous item	0
Options -> Security -> Cash Drawer	Open time limit	999999
Options -> Security -> Overrides	Void of item not sold	Disabled
Options -> Security -> Item Entry2	Quantity required items bypass B029 prompt	Enabled
Options -> Security -> Void	Void Reason ID	**Note:** The entry here is optional, but **must** match the "SCS Security Void" reason code shown next.

Table 11. Mapping of SurePOS ACE options for the Self-Service Pay Station (continued)

SurePOS ACE option location	SurePOS ACE option name	Details
Options -> Security -> Void	SCS Security Void reason code	**Note:** This value **must** be included in Void reason ID list.
Options -> Tender -> Generic	Void Transaction Limit	99999.99
Options -> Tender -> Generic	Exchange Transaction Limits	+++ +++ +++
Options -> Tender -> Tdr Limits -> Cash	Change Limit	+++ +++ +++
Options -> Tender -> Tdr Limits -> Cash	Max Tender Entry	+++ +++ +++
Options -> Tender -> Tdr Limits -> Cash	Max Quantity Limit	999
Options -> Tender -> Tdr Limits -> Cash	Verification Limit	0
Options -> Tender -> Tdr Limits -> Cash	Auto Reconcile Limit	Amount=9999.99 Count=9999
Loyalty -> General -> ID Entry	Prompt checker to ask for customer ID	Disabled
Loyalty -> General -> ID Entry	Type of override required for keyed customer ID	0
Loyalty -> General -> ID Entry	Type of override required for new customer ID	0
Print -> Post Print -> General	Print Post Transaction	Enabled
Options -> Restricted Sales -> General	Re-check Periods Before Tender	0

Chapter 7. Additional system components

This chapter discusses the Point of Sale (POS) Integration Hub configuration properties, Trust Level Management, and the Mobile Report Web Application for the Mobile Shopper.

POS Integration Hub

Unless indicated otherwise in the following sections, all configuration properties for the POS Integration Hub are specified in `ADX_IPGM:SIUSERDI.PRO` or `ADX_IPGM:DIFUSER.PRO` depending on which of these two files is used by the retailer to provide user configuration for DIF.

Included services

The base Mobile Shopper solution includes the POS Integration Hub (PIH) services described in the following sections. The `MobileBrokerService` is required for all mobile implementations. The other services are optional and should be included only if required for a particular retailer implementation.

MobileBrokerService

The `MobileBrokerService` provides outside applications, such as the Mobile Engine and mobile payment stations, with access to the POS Integration Hub. The `MobileBrokerService` receives messages from applications such as the Mobile Engine and publishes those messages to the POS Integration Hub broker. In addition, the `MobileBrokerService` subscribes to messages on behalf of the application and delivers those messages to the application.

ClassPreloadService

The `ClassPreloadService` loads necessary classes such as JDBC drivers that are not loaded automatically. This service must be enabled if the `TransactionAlertService`, `ItemAlertService` , or `TargetedCouponAlertService` is enabled.

AuditService

The `AuditService` is the audit connector and must be enabled if audits are performed during checkout. The `AuditService` interacts with the retailer's audit enterprise web service and provides the audit input from the web service to the payment station.

The `AuditService` subscribes to the "transaction transfer initiated" event message that is published by the Mobile Engine when the shopper scans the payment station. On startup, each payment station (self-service pay station or a Store Integrator GUI attended pay station) connects to the POS Integration Hub through the `MobileBrokerService` and registers a subscription to receive audit response messages. When the shopper scans the payment station, the Mobile Engine publishes a "transaction transfer initiated" event message to the POS Integration Hub via the `MobileBrokerService`. Since the `AuditService` is subscribed to the "transaction transfer initiated" event message, it will receive the event message, encapsulate it in an audit request, and send the audit request to the audit enterprise web service.

When the audit response is received from the enterprise web service, it is published to the POS Integration Hub, addressed to the payment station indicated in the "transaction transfer initiated" event message. Since the `MobileBrokerService` is

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subscribed to audit response messages on behalf of the payment station, it will receive the audit response message and forward it to the payment station to be used in the audit process.

The AuditService supports the following configuration properties.

AuditSoapRequestActor.timeout
This property specifies the amount of time in milliseconds to wait for a response. This property is optional. The default value is 5000 (5 seconds).

AuditSoapRequestActor.host.url
This property specifies the URL of the SOAP server or web service. This property is required.

AuditSoapRequestActor.soap.action.url
This property specifies the value to be placed in the SoapAction header of the request. This property is optional. The default value is http://mobile.retail.ibm.com/PosIntegration/ws/audit/V1/MobileAuditInterface/processRequest.

MobileEventLogService

The MobileEventLogService logs incoming mobile events to the C:\SILOGS directory on the controller on which POSIH is running, and can serve as a simple implementation of an analytics connector. Writes to the event log file are not 'assured', in that data may be lost in the case of unexpected failures such as hardware failures, application crashes, and operating system crashes. The event log is implemented as a rotating set of files. As each file reaches the given size limit, it is closed, rotated out, and a new file opened.

Successively older files are named by adding "0", "1", "2" into the base filename, such that if mobevent.0 is the current file, mobevent.1 is the previous file, and mobevent.2 is the oldest file (where X is determined by the 'number of log files to keep' configuration option). The retailer is responsible for retrieving the files after they are rotated off, archiving them if desired, and processing the file contents as appropriate.

The MobileEventLogService supports the following configuration properties.

MobileEventLogService.subscription-list.include
This property indicates whether the subscription includes or excludes the events specified by subscription-list. A value of **true** indicates that the subscription consists of only the events specified by subscription-list. A value of **false** indicates that the subscription consists of all events except those specified by subscription-list. This property is optional, and defaults to false if not set.

MobileEventLogService.subscription-list
This property specifies a comma separated list of event type names defining the events that the broker should provide to the service instance. This property is optional. The default value is NotificationMsg. Since the default value of subscription-list.include is false, the default behavior of MobileEventLogService is to log all mobile events except for customer notification (alert) events. See SIMobileInterface.doc for a description of the various mobile events.

AuditSoapRequestActor.soap.action.url
This property specifies the value to be placed in the SoapAction header of the request. This property is optional. The default value is

http://mobile.retail.ibm.com/PosIntegration/ws/audit/V1/MobileAuditInterface/processRequest.

Item Exceptions Services

The Item Exceptions Services: ItemExceptionsSuspendService, ItemExceptionsSaveService, ItemExceptionsRetrieveService, and ItemExceptionsRemoveService provide for the reliable transfer of item exception data between the Mobile Engine and pay station terminals. In some installations a relational database may be used for item exception data transfer, and the Item Exceptions Services do not need to be started in these installations.

TransactionAlertService

The TransactionAlertService is the transaction alert connector. Transaction Alerts are the means by which customers are notified of communications not related to a specific item. Examples include:

- Daily specials
- The current adds for the week
- Scheduled store events, such as, "Wine tasting tonight from 7-9 p.m."

By default, the TransactionAlertService will check a database table for relevant transaction alerts whenever a customer starts the Mobile Shopper application, and when the customer scans an item using their mobile device. The TransactionAlertService can be used to trigger alerts for:

- All shoppers when they start the Mobile Shopper application.
- Specific shoppers when they start the Mobile Shopper application.
- All shoppers when they scan a particular item.
- Specific shoppers when they scan a particular item.

ItemAlertService

The ItemAlertService is the item alert connector. Item Alerts notify customers of up-sell and cross-sell offers that are specific to an item that was just scanned during the transaction. Examples include:

- If the customer purchased a coffee maker, they may receive an item notification to add a warranty to their purchase directly from the mobile device (up-selling).
- If the customer purchased coffee beans, they may receive an item notification to join a coffee club and add that item to their purchase directly from the mobile device (cross-selling).
- If the customer has purchased hot dogs and buns, they may receive a notification that ketchup is on-sale (up-selling, but requiring a customer to enter the item during their shopping experience).
- The ItemAlertService will check a database table for relevant item alerts whenever a customer scans an item using their mobile device. Item alerts cannot be limited to specific customers. Item alerts are defined in a similar manner to transaction alerts.

TargetedCouponAlertService

The TargetedCouponAlertService is the targeted coupon alert connector. The TargetedCouponAlertService generates transaction alerts for EM/EME coupons that are targeted to a customer. In order for an alert to be generated for a particular targeted coupon, the characteristics of the alert must be defined in a database table. If an alert is defined for an EM/EME coupon targeted to a customer, then the defined alert will be delivered to the customer when the Mobile Shopper application

is started. Alerts are generated only for coupons targeted to the customer at the beginning of the shopping trip. Alerts are not generated for coupons targeted to the customer during the shopping trip.

The `TargetedCouponAlertService` supports the following configuration properties:

TargetedCouponAlertService.consolidateNotifications
: Indicates whether a separate notification should be generated for each occurrence of a particular targeted coupon number in the customer record, or whether a single notification should be generated regardless of the number of instances. If true, then a single notification will be generated for each unique targeted coupon number. If false, a notification will be generated for each targeted coupon number, and if a given targeted coupon number is present multiple times, then multiple notifications will be generated. The initial notification for a given targeted coupon number will use the MsgId value defined in the database. Subsequent notifications for the same targeted coupon number will append a sequence number to the MsgId value from the database. The sequence number begins at 2, and increases by one for each subsequent notification for the same targeted coupon number. This property is optional. If this property is not specified, a value of *false* will be used.

TargetedCouponAlertService.msgIdSuffixSeparator
: This is the string to use to separate the MsgId value from the database from the sequence number in the case where `consolidateNotifications` is false and the customer record contains multiple occurrences of a given targeted coupon number. This property is optional. If this property is not specified, a value of *"."* will be used.

PointsAlertService

The `PointsAlertService` is the points balance alert connector. The `PointsAlertService` generates transaction alerts for EM/EME points clubs in which the customer is enrolled. In order for an alert to be generated for a particular points club, the characteristics of the alert must be defined in the file `ADX_IPGM:PIHPOINT.PRO`. The format of this file is described below. If an alert is defined for an EM/EME points club in which the customer is enrolled, then the defined alert will be delivered to the customer when the Mobile Shopper application is started.

Alerts are generated only for clubs in which the customer is enrolled at the beginning of the shopping trip. Alerts are not generated for clubs in which the customer enrollment changes during the shopping trip. In addition, if the alert contains the points balance, the points balance as of the start of the transaction will be shown to the shopper. The points balance displayed to the shopper will not be updated during the shopping experience, that is, there will be no 'running total' displayed for point balances.

The `PointsAlertService` requires the `CustomerAddedParserService`, and if the `PointsAlertService` is enabled, then the `CustomerAddedParserService` must also be enabled in order for club points alerts to be generated.

The `PointsAlertService` supports the following configuration properties:

PointsAlertService.includeZeroBalance
: Indicates whether a notification should be generated for points clubs in which the customer has a balance of zero. If true, then a notification will be generated for points clubs having a zero balance. If false, a notification will

not be generated for points clubs having a zero balance. This property is optional. If this property is not specified, a value of *false* will be used.

PointsAlertService.includeUnavailableBalance
Indicates whether a notification should be generated for points clubs for which a balance is not available, for example, because the customer is not enrolled in the points club. If true, then a notification will be generated for points clubs for which a balance is not available. If false, a notification will not be generated for points clubs for which a balance is not available. This property is optional. If this property is not specified, a value of *false* will be used.

PointsAlertService.unavailableBalanceValue
Specifies a numeric balance value that should be used for points clubs for which a balance is not available. If this property is not specified, a value of *null* will be used.

PointsAlertService.refreshMillis
Specifies how often to reread PIHPOINTS.PRO in order to load changes made to the customer points notification definitions. The value is specified in milliseconds. If this property is not specified, a value of *300000* (five minutes) will be used.

The alert characteristics for individual EM/EME clubs are defined in the file `ADX_IPGM:PIHPOINT.PRO`. This file is structured as a Java properties file. The property names must be prefixed with *"N."* where *N* is the club number. For example, the following entry specifies the title for club 1:

```
1.title=Your Baby Bucks balance is {1}
```

The following properties are supported in `PIHPOINTS.PRO`:

groupingName
The text name of the notification grouping. If this property is not specified, the default value is "Points Balances".

title The notification title that will be displayed to the customer. The title is processed using a Java MessageFormat that supports the following arguments:

0 is the club number.

1 is the points balance as a string value.

2 is the points balance as an integer value.

3 is the points balance as a decimal value.

If this property is not specified, the default value is "Your club {0} balance is {1}".

In general, argument 1 (string value) is used to display the balance exactly as it was received from the POS application, argument *2* (integer value) is used to display the balance as a numeric value formatted according to the default locale, and argument *3* (decimal value) is used to display the balance as a currency value formatted according to the default locale.

If the `includeUnavailableBalance` configuration property is *true* and the balance for a points club is not available, then the value of argument *1* will be the value of the `balanceUnavailable` property from `PIHPOINTS.PRO`, or the text "unavailable" if no value is specified for the `balanceUnavailable` property. The value of arguments *2* and *3* will be the value of the `unavailableBalanceValue` configuration property.

contentType

The notification content type.

0 indicates the content is text that should be displayed with an **OK** button.

1 indicates the content is text that should be displayed with a **Yes** or **No** button.

2 indicates the content is a URL.

If this property is not specified, the default value is *0*.

content

The content of the notification to be displayed when the customer touches the notification title. The title is processed using a Java `MessageFormat` that supports the same arguments as the `title`. If this property is not specified, the content will contain the same text as the `title`.

imageLocation

The location of the image to display next to the notification title. The image location must be in the class path of the application. If this property is not specified, the default value is `clubN.png`, where *N* is the club number.

The following is an example `PIHPOINTS.PRO` file defining alerts for clubs 9, 11, and 14. The lines beginning with # are comments included to explain the entries.

```
#
# Club 9 balance formatted as a currency value
9.title=Your Rx Bucks balance is {3,number,currency}
# Club 9 alert content is a URL
9.contentType=2
9.content=http://www.retailer.com
# Club 9 image in ADX_IPGM:resource
9.imageLocation=resource/Rx.png
#
# Club 11 balance formatted as a numeric value
11.title=Your Baby Club balance is {2}
# Club 11 alert content is text
11.content=Redeem 500 baby club points for a $5 gift certificate good on
hundreds of baby items
# Club 11 image in ADX_IPGM:resource
11.imageLocation=resource/baby.png
#
# Club 14 balance formatted as a numeric value if balance is
# available, or the string "unavailable" if the balance is
# not available.
14.title=Your Family Club balance is {2,choice,-1#unavailable|-1<{2}}
14.imageLocation=resource/coins.png
```

CustomerAddedParserService

The `CustomerAddedParserService` is the Customer Added Event Parser. This service is an internal service that is used by the following service: `PointsAlertService`.

If any of the above services are enabled, then the `CustomerAddedParserService` must also be enabled.

Trust Level Management

The Trust Level Management (TLM) system calculates a "level of trust" for each shopper that can be used to determine how often the shopper should be subjected to an audit. The TLM system consists of the following major features:

Scoring Based on Audit History

Allows a retailer to base future mobile transaction audit decisions on past

audit performance. For example, customers can be subjected to more frequent and increasingly severe audits when they have a history of audit failures. Inversely, customers can be subjected to less frequent and less severe audits as they establish trust by passing audits.

Scoring Inputs
Builds on Scoring Based on Audit History by adding additional inputs that influence audit decisions such as random chance. With the Scoring Based on Audit History alone, audits occur at a given frequency based on the customer trust level, so it is possible for an observant customer to predict the transaction in which they will be audited, and potentially modify their behavior based on the knowledge that they will be audited. Adding more inputs, such as a random chance to the audit decision makes it much more difficult for a customer to predict when they will be audited, which in turn makes audit performance a more reliable measure of customer trust.

Trust Level Management components

The Trust Level Management system consists of the following components, which will be discussed in more detail in the following sections.

Customer Data Store
A relational database table that contains audit information related to a particular customer, including performance on past audits.

Template
The overall container for the configuration of the audit service.

Audit Class
A classification of a customer for audit purposes, along with the configurable parameters defining the class.

Configuration Data Store
A set of relational database tables containing the templates and audit classes.

Audit Request Web Service
A web service called to determine how to audit a particular mobile transaction.

Events Web Service
A web service called when various events occur during the mobile shopping trip, such as customer added, item added, or audit results.

Audit Results Event Handler
Called by the Events Web Service to update the Customer Data Store with the results of an audit for a particular mobile transaction.

Properties Store
Contains the configuration properties for the web services. The properties store is implemented using JNDI environment entries.

Trust Level Management Scoring based on audit history

The Scoring Based on Audit History feature allows the retailer to separate customers into different classes based on past audit performance. Each of these audit classes supports parameters that define how often to audit the customer and what type of audit to perform. For spot audits, the number of items to scan, as well as, the number of failed items allowed can also be defined.

Trust Level Management Scoring based on audit history configuration

The Scoring Based on Audit History feature requires the creation of a template that serves as a container for the customer audit classes. A template is defined by a row in the TLM_AUDIT_TEMPLATE table in the relational database. Multiple templates can be defined, but only a single template is active at any given time. Templates are defined by adding rows to the TLM_AUDIT_TEMPLATE table using a tool, such as, the DB2® Control Center or by issuing SQL commands.

The TLM_AUDIT_TEMPLATE table contains the following data elements:

TEMPLATE_ID
A number uniquely identifying the template.

DESCRIPTION
A text description of the audit template.

Each template has one or more audit classes. Each template must have a class where both MIN_AUDITS and TRUST_LEVEL are equal to zero. Similar to templates, audit classes are defined by adding rows to the TLM_AUDIT_CLASS table using a tool, such as, the DB2 Control Center or by issuing SQL commands.

The TLM_AUDIT_CLASS table contains the following data elements.

CLASS_ID
An auto-generated number identifying the audit class.

DESCRIPTION
A text description of the audit class.

TEMPLATE_ID
The number identifying the audit template with which this class is associated.

MIN_AUDITS
The number of times the customer must have been audited in order to be in this class.

TRUST_LEVEL
The percentage of audits the customer must have passed in order to be in this class.

MAX_TRANS_NO_AUDIT
The maximum number of mobile transactions the shopper can perform without an audit.

AUDIT_TYPE
The type of audit to perform. Valid values are None, Spot, and Full.

NUM_TO_SCAN
The number of items required to be scanned during a Spot audit. This value is relevant only for a Spot audit. A value of NULL indicates that no value should be sent (so that the default configured on the store controller will be used). A value of less than zero indicates that a default value from the Properties Data Store should be used.

NUM_FAILED_ALLOWED
The number of failed items allowed before escalating to a Full audit. A failed item is an item scanned or entered during the audit that is not present in the transaction. This value is relevant only for a Spot audit. A value of NULL indicates that no value should be sent (so that the default configured on the

store controller will be used). A value of less than zero indicates that a default value from the Properties Data Store should be used.

Audit classes are typically defined in such a way that audits become more frequent and/or more severe as the customer trust level decreases. See your Toshiba engagement representative for an example of audit classes that implement this behavior.

The TLM Web Services supports several properties that control various aspects of their operation. These property values can be changed using application configuration tools provided by the Web server, such as the Administrative Console provided with WebSphere®.

MobileAuditService/AuditTemplateId
The number identifying the audit template to use to process audit requests. This number must correspond to a TEMPLATE_ID value in the TLM_AUDIT_TEMPLATE table in the relational database.

MobileAuditService/NumItemsToScan
The number of items required to be scanned during a Spot audit to return in the audit response if the audit class indicates the default value should be returned.

MobileAuditService/NumFailedItemsAllowed
The number of failed items allowed before escalating to a Full audit to return in the audit response if the audit class indicates the default value should be returned.

MobileEventService/RequestHandler
The request handler for the Mobile Event Web Service. This value may be changed to the fully-qualified class name of a custom event request handler implementation class. For example, a custom event request handler may return alerts informing the shopper of special promotions in response to Mobile Shopping events such as customer added and item added to cart. An event request handler class must implement the `com.tcx.mobile.posintegration.ws.request.handler.EventRequestHandler` interface.

The following properties control error handling and should be customized with care.

MobileEventService/RetriableExceptions
A space separated list of the fully-qualified class names of exceptions that are considered "retriable" by the Mobile Event Web Service. If one of these exceptions occurs while invoking the configured event handlers, then the current transaction will be rolled back and each event handler will be recalled to process the same event again. This prevents a transient error from causing a permanent failure. This feature is intended primarily for use with event handlers that perform operations in a transactional context. If there are a mix of transactional and non-transactional handlers, then the transactional handlers should be listed first in the `MobileEventService/EventHandlers` property so that the non-transactional handlers are not called multiple times due to a "retriable" exception from a transactional handler. An event handler must be prepared to receive the same event twice if a "retriable" exception occurs in a subsequent event handler.

The following exceptions are retried by default:

OptimisticLockException
Two handlers simultaneously attempted to update the same database row(s).

DuplicateKeyException
Two handlers simultaneously attempted to retrieve a database row for updating and inserted a new row if no row was found on the retrieval.

StaleConnectionException
The underlying connection to the database is no longer usable.

MobileEventService/MaxRetries
The maximum number of times event processing should be retried for a particular event.

MobileEventService/RetryDelay
A space separated list of the fully-qualified class names of exceptions that are considered "retriable" by the Mobile Audit Request Web Service. If one of these exceptions occurs while processing the audit request, then the request processing will be attempted again. This prevents a transient error from causing a permanent failure.

The following exception is retried by default:

StaleConnectionException
The underlying connection to the database is no longer usable.

MobileAuditService/MaxRetries
The maximum number of times a particular audit request should be retried.

MobileAuditService/RetryDelay
The amount of time in milliseconds to delay between retries of an audit request.

In order to access and modify the TLM Web Services properties via the Administrative Console provided with WebSphere, do the following:

1. In the Tasks list on the left, expand Applications, expand Application Types, and then click **WebSphere enterprise applications**.
2. Click **mobile_web_services_war**.

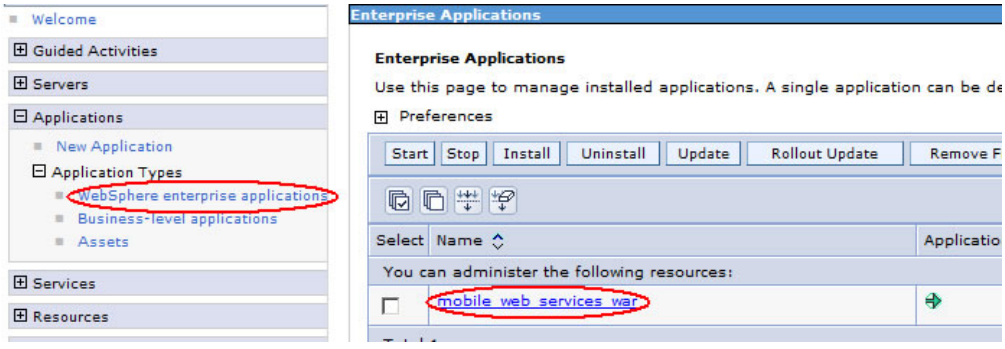

Figure 21. WebSphere enterprise applications

3. Under Web Module Properties, click **Environment entries for Web modules**.

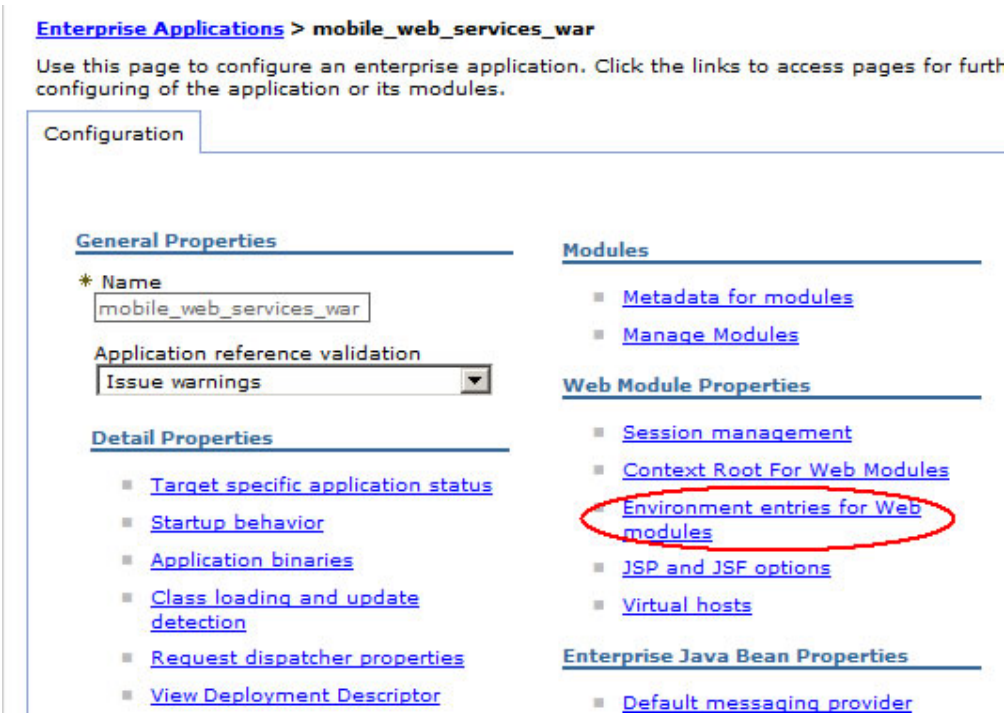

Figure 22. Environment entries for Web modules

4. Make any necessary changes to the values and click **OK**.
5. Click the **Save** link in the Messages box.

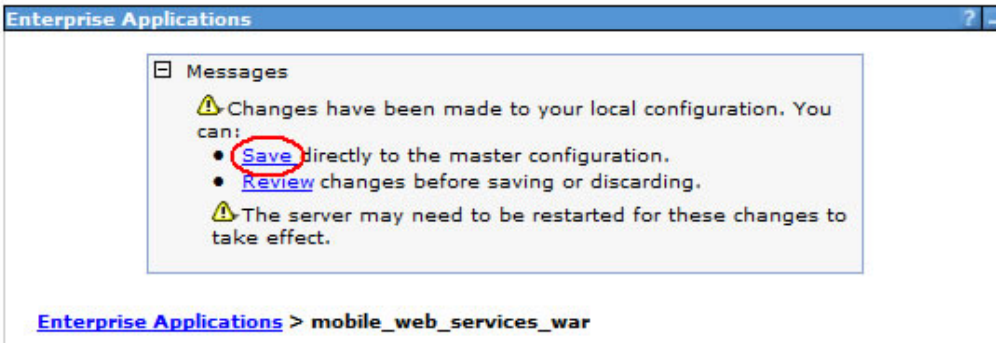
Enterprise Applications
Messages
Changes have been made to your local configuration. You can:
Save directly to the master configuration.
Review changes before saving or discarding.
The server may need to be restarted for these changes to take effect.
Enterprise Applications > mobile_web_services_war

Figure 23. Save

6. The configuration changes will take effect the next time the `mobile_web_services_war` application is restarted.

Trust Level Management scoring based on audit history administration

The following sections describe the Trust Level Management (TLM) scoring based on the audit history.

Starting and stopping the TLM Application: In order to start the Trust Level Management application through the Administrative Console provided with IBM WebSphere, do the following:

1. In the Tasks list on the left, expand Applications, expand Application Types, and then click **WebSphere enterprise applications**.

2. Click the checkbox next to `mobile_web_services_war`.
3. Click the **Start** button at the top of the Enterprise applications frame.

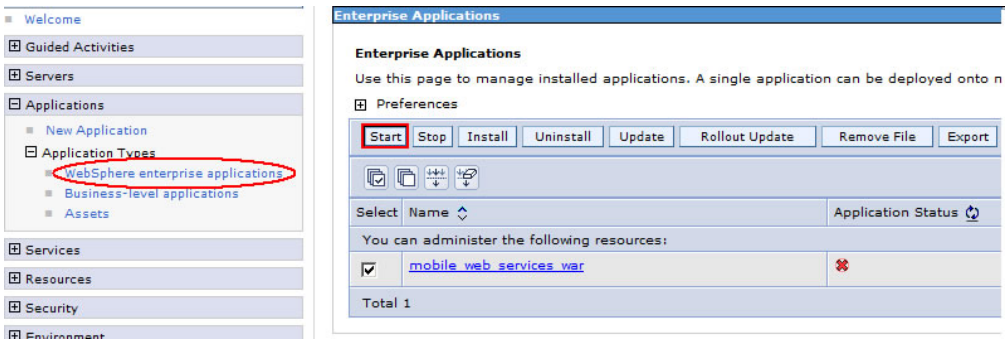

Figure 24. Enterprise applications - start

In order to stop the Trust Level Management application through the Administrative Console provided with IBM WebSphere, do the following:

1. In the Tasks list on the left, expand Applications, expand Application Types, and then click **WebSphere enterprise applications**.
2. Click the checkbox next to `mobile_web_services_war`.
3. Click the **Stop** button at the top of the Enterprise applications frame.

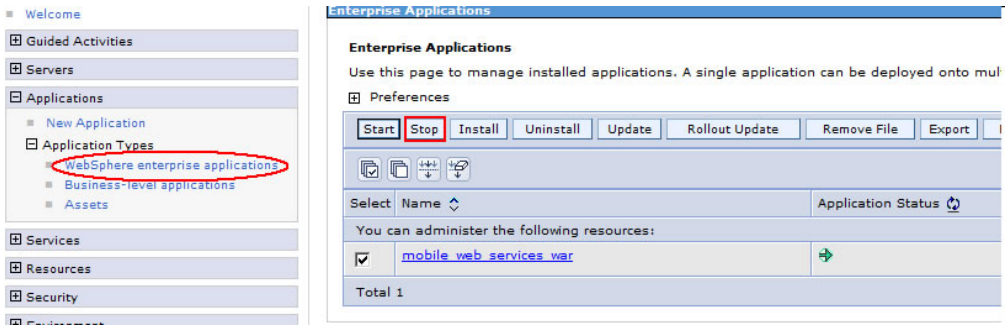

Figure 25. Enterprise applications - stop

Messages and logging: The Trust Level Management application logs messages to the Web server standard log. For WebSphere on the BOSS, this log is located in:

`C:\Program Files\IBM\WebSphere\AppServer\profiles\default\logs\server1\SystemOut.log`

All messages will begin with the string `MobileXXX:`, e.g. `MobileInit`, `MobileDAO`, `MobileEvent`, and `MobileAudit`. The following messages are taken from the WebSphere `SystemOut.log` file. The header information may appear differently in a different Web server; however, the message text should remain the same.

The following informational messages are logged at application startup:

```
[6/17/13 17:02:17:656 EDT] 00000025 WASAxis2Exten I   WSWS7037I: The /PosIntegration/ws/event/V1/MobileEventService
URL pattern was configured for the com.tcx.mobile.posintegration.ws.event.v1.MobileEventService servlet located
in the mobile_web_services.war web module.
```

This WebSphere specific message indicates the URL pattern where the Mobile Event Web Service is located. The Audit Result event handler is deployed within the Mobile Event Web Service. The path component of the URL specified in the POSIH configuration for `EventSoapRequestActor.host.url` must match this URL pattern, for example:

```
EventSoapRequestActor.host.url=http://MobileDBHostname/PosIntegration/ws/event/V1/MobileEventService
```

```
[6/17/13 17:02:17:656 EDT] 00000025 WASAxis2Exten I   WSWS7037I: The /PosIntegration/ws/audit/V1/MobileAuditService
URL pattern was configured for the com.tcx.mobile.posintegration.ws.audit.v1.MobileAuditService servlet located in
the mobile_web_services.war web module.
```

This WebSphere specific message indicates the URL pattern where the Mobile Audit Request Web Service is located. The path component of the URL specified in the POSIH configuration for `AuditSoapRequestActor.host.url` must match this URL pattern, for example:

```
AuditSoapRequestActor.host.url=http://MobileDBHostname/PosIntegration/ws/audit/V1/MobileAuditService
```

```
[6/17/13 17:02:17:734 EDT] 00000025 MobileServlet I  MobileInit: Initializing Mobile Context
```

This message indicates the Web server is loading the Audit Web Services.

```
[6/17/13 17:02:17:750 EDT] 00000025 EventHandlerF I   MobileEvent: Event handlers list
[com.tcx.mobile.posintegration.ws.event.handler.AuditResultsEventHandler
com.tcx.mobile.posintegration.ws.event.handler.LoggingEventHandler]
This message indicates the configured event handlers.
```

This message indicates the configured event handlers.

```
[6/17/13 17:02:17:937 EDT] 00000025 jdbc_JDBC     I   CWWJP9990I: openjpa.jdbc.JDBC: Info:
Using dictionary class "com.ibm.ws.persistence.jdbc.sql.DB2Dictionary" (DB2/NT SQL09075,
IBM Data Server Driver for JDBC and SQLJ 4.13.80).
```

This is a WebSphere specific message that indicates the database type and JDBC driver that is used to access the relational database.

```
[6/17/13 17:02:18:609 EDT] 00000025 TLMAuditReque I   MobileAudit: Loaded audit template OrderedAuditTemplate [templateId=0,
description=Default audit template, auditClasses=[AuditClassImpl [classId=36, description=If the
customer has been audited at least ten times and has never failed an audit,
spot audit every fiftieth transaction, minAudits=10, trustLevel=100, maxTransNoAudit=49,
auditType=1, numToScan=3, numFailedAllowed=2], AuditClassImpl [classId=35, description=If the
customer has passed at least 95% and has been audited at least ten times, spot audit every
twentieth transaction, minAudits=10, trustLevel=95, maxTransNoAudit=19, auditType=1, numToScan=3,
numFailedAllowed=2], AuditClassImpl [classId=34, description=If the customer has
passed at least 90% and has been audited at least three times, spot audit every tenth
transaction, minAudits=3, trustLevel=90, maxTransNoAudit=9, auditType=1, numToScan=-1,
numFailedAllowed=-1], AuditClassImpl [classId=33, description=If the customer has passed at
least 75% but less than 90% and has been audited at least three times, spot audit every
fifth transaction, minAudits=3, trustLevel=75, maxTransNoAudit=4, auditType=1, numToScan=null,
numFailedAllowed=-1], AuditClassImpl [classId=32, description=If the customer has passed at
least 60% but less than 75% and has been audited at least three times, spot audit every third
transaction, minAudits=3, trustLevel=60, maxTransNoAudit=2, auditType=1, numToScan=8, numFailedAllowed=null],
AuditClassImpl [classId=31, description=If the customer has passed at least 30% but less than 60%
and has been audited at least three times, spot audit every third transaction, minAudits=3, trustLevel=30,
maxTransNoAudit=2, auditType=1, numToScan=10, numFailedAllowed=-1], AuditClassImpl [classId=30,
description=If the customer has passed less than 30% of their audits and has been audited at least three times,
spot audit every transaction, minAudits=3, trustLevel=0, maxTransNoAudit=0, auditType=1, numToScan=10,
numFailedAllowed=0], AuditClassImpl [classId=29, description=Initially spot audit each transaction,
minAudits=0, trustLevel=0, maxTransNoAudit=0, auditType=1, numToScan=null, numFailedAllowed=null]]]
```

This message shows the definition of the audit template that will be used to process the audit request.

```
[6/17/13 17:02:21:093 EDT] 00000025 MobileServlet I    MobileInit: Mobile Context initialization completed
```

This message indicates that the initialization of the Mobile Audit Web Service is complete.

In the interest of performance, the Mobile Audit Web Service does not typically log informational messages during normal operations following service startup. However, if the `LoggingEventHandler` is configured, the XML content of each event will be logged as an informational message similar to the following:

```
[6/21/13 17:23:25:788 EDT] 00000045 LoggingEventH I   MobileEvent:<?xml version="1.0" encoding="UTF-8"
standalone="yes"?><ns3:eventRequestPayload xmlns:ns5="http://mobile.tcx.com/PosIntegration/alert"
xmlns:ns6="http://mobile.tcx.com/PosIntegration/messages/audit" xmlns:ns2="http://mobile.tcx.com/PosIntegration"
xmlns:ns3="http://mobile.tcx.com/PosIntegration/messages/event"
xmlns:ns4="http://bc.si.retail.ibm.com/POSBCSchema"><ns3:RequestTime>2013-06-
21T17:23:19.429</ns3:RequestTime><ns3:StoreNumber>0</ns3:StoreNumber><ns2:Event
xsi:type="ns2:CustomerAddedEventContainerType" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance"><ns2:deviceID>0000000000000001</ns2:deviceID><ns2:MessageType>CUSTOMER
ADDED</ns2:MessageType><ns2:CustomerAddedEvent><ns2:CustomerInfo><ns4:AddCustomerResult><Result
Extension><KeyValuePair><Key><TerminalNumber></Key><Value>701</Value></KeyValuePair><KeyValuePair>
<Key>TransactionID</Key><Value><799</Value></KeyValuePair></ResultExtension><RequestID>2</RequestID>
<CustomerInfo xsi:type="ns8:CustomerInfoType"
xmlns:ns8="http://bc.mobile.si.retail.ibm.com/POSBCSchema"><CustomerID>42222222222</CustomerID><Name></Name>
<LoyaltyMessage>" VALUED CUSTOMER Valued Customer"
</LoyaltyMessage></CustomerInfo>/ns4:AddCustomerResult></ns2:CustomerInfo>
</ns2:CustomerAddedEvent><ns2:Event></ns3:eventRequestPayload>
```

Debug Logging for Problem Determination: Debug messages can be used to track the operation of the Mobile Audit Web Service for problem determination purposes.

WebSphere on the BOSS writes debug and trace messages to:

`C:\Program Files\IBM\WebSphere\AppServer\profiles\default\logs\server1\trace.log`

Debug messages can be enabled in WebSphere using the WebSphere Administrative Console.

1. From the task list on the left side of the Administrative console, click **Troubleshooting, Logs and trace**, then click **server1**.

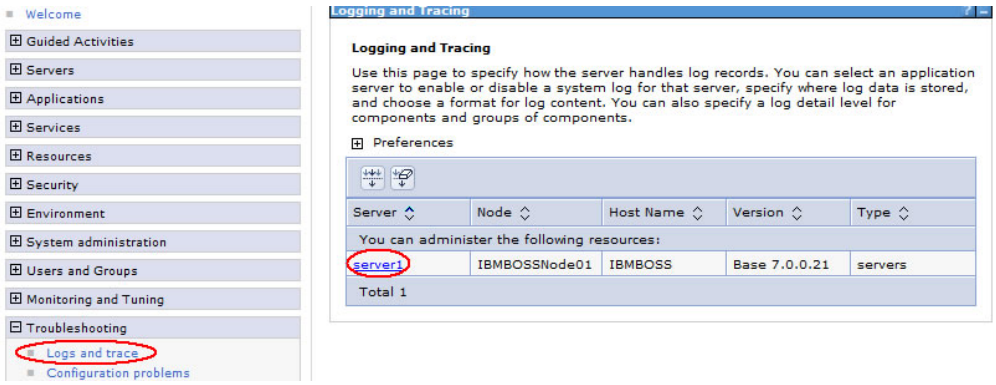

Figure 26. Troubleshooting, Logs and trace

2. On the next screen, click **Change Log Detail Levels**.
3. On the Change log detail levels screen, click the **Runtime** tab. Click in the text box and enter a colon followed by `com.tcx.mobile.posintegration.ws.*=fine` or use the All Components tree list to navigate to `com.tcx.mobile.posintegration.ws`. If you want the log level changes to remain

in place after an application restart, then click **Save runtime changes to configuration as well**.

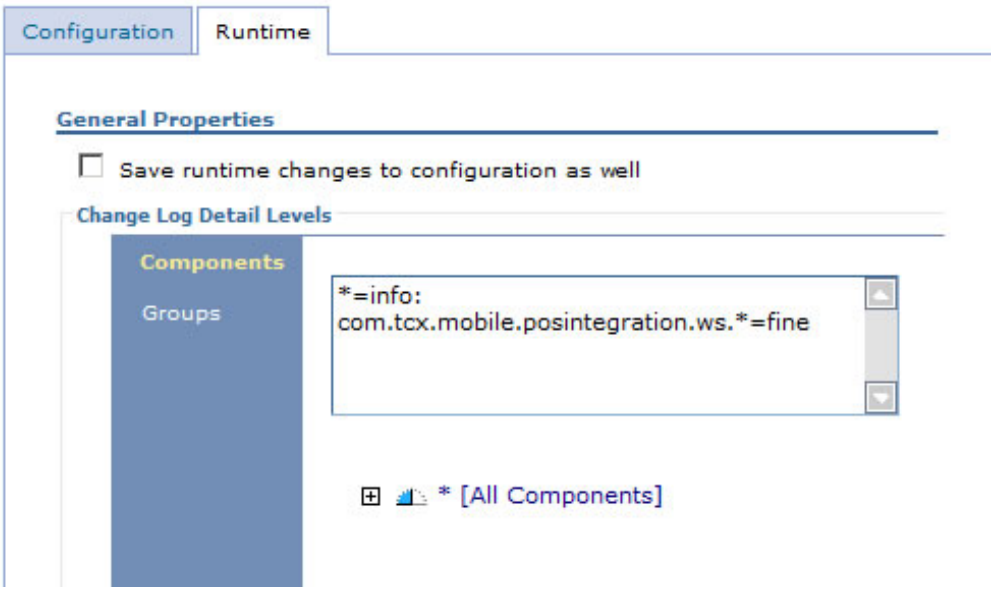

Figure 27. Change Log Details screen

4. Scroll to the bottom of the screen, then click the **Apply** button. If you selected **Save runtime changes to configuration as well**, then you will be prompted to save the changes to the master configuration. Click **Save** to save the changes.
5. When the trace state changes, WebSphere will log a message similar to the following to the trace log:

```
[6/24/13 16:48:56:040 EDT] 00000045 ManagerAdmin  I   TRAS0018I: The trace state has changed.
The new trace state is *=info:com.tcx.mobile.posintegration.ws.*=fine.
```

The following are sample debug messages displayed by the Mobile Event Web Service:

```
[6/24/13 14:08:18:790 EDT] 00000058 MobileEventIm 1    MobileEvent: Beginning transaction
[6/24/13 14:08:18:790 EDT] 00000058 MobileEventIm 1    MobileEvent:
Calling event handler com.tcx.mobile.posintegration.ws.event.handler.AuditResultsEventHandler
[auditCustomerDAOFactory=DAOFactory [ctor=protected com.tcx.mobile.posintegration.ws.dao.AuditCustomerDAOImpl
(javax.persistence.EntityManager)]]
[6/24/13 14:08:18:790 EDT] 00000058 MobileEventIm 1    MobileEvent:
Calling event handler com.tcx.mobile.posintegration.ws.event.handler.LoggingEventHandler@17ea17ea
[6/24/13 14:08:18:806 EDT] 00000058 MobileEventIm 1    MobileEvent: Committing transaction
[6/24/13 14:08:18:806 EDT] 00000058 MobileEventIm 1    MobileEvent: Completed request handling
```

From these debug messages it is possible to determine exactly which event handlers are being invoked, as well as, how long the event processing takes. The following are sample debug messages displayed by the Mobile Audit Request Web Service:

```
[6/24/13 17:04:22:681 EDT] 00000045 TLMAuditReque 1   MobileAudit: New customer AuditCustomerImpl
[loyaltyId=42044612390, transSinceAudit=0, numAudits=0, numFailedAudits=0, lastAudit=null, lastAuditUpdate=null]
```

This message indicates that the customer is a new customer and a record for the customer loyalty ID does not exist in the Customer Data Store. In addition, this message displays the audit history for the customer:

```
[6/24/13 17:16:29:634 EDT] 00000047 TLMAuditReque 1   MobileAudit: Retrieved customer AuditCustomerImpl
[loyaltyId=400747320406, transSinceAudit=7, numAudits=3, numFailedAudits=0, lastAudit=Mon Jun 24 17:16:29 EDT 2013,
lastAuditUpdate=Sat Jun 22 22:21:32 EDT 2013]
```

This message indicates the customer is an existing customer and a record for the customer already exists in the Customer Data Store. In addition, this message displays the audit history for the customer:

```
[6/24/13 17:04:22:681 EDT] 00000045 AuditStrategy 1   MobileAudit: Best audit class for customer 42044612390
with 0 audits and trust level 0 is AuditClassImpl [classId=29, description=Initially spot audit each
 transaction, minAudits=0, trustLevel=0, maxTransNoAudit=0, auditType=1, numToScan=null, numFailedAllowed=null]
```

This message indicates the customer trust level that was calculated for the customer, as well as, the audit class that was selected for the customer:

```
[6/24/13 17:04:22:681 EDT] 00000045 AuditStrategy 1   MobileAudit: Audit is required
```

This message indicates whether an audit is required based on the audit class.

```
[6/24/13 17:04:22:681 EDT] 00000045 AuditStrategy 1   MobileAudit: Setting CustomerId to 42044612390
[6/24/13 17:04:22:681 EDT] 00000045 AuditStrategy 1   MobileAudit: Setting CustomerTrustLevel to 0
[6/24/13 17:04:22:681 EDT] 00000045 AuditStrategy 1   MobileAudit: Setting CustomerNumAudits to 0
[6/24/13 17:04:22:681 EDT] 00000045 AuditStrategy 1   MobileAudit: Setting TypeOfAudit to SPOT_AUDIT
[6/24/13 17:04:22:681 EDT] 00000045 AuditStrategy 1   MobileAudit: Omitting NumItemsToScan
[6/24/13 17:04:22:681 EDT] 00000045 AuditStrategy 1   MobileAudit: Omitting NumFailedItemsAllowed
```

These messages specify the audit parameters based on the audit class that will be returned in the audit response.

Trust Level Management additional scoring inputs

With the Scoring Based on Audit History feature, audits occur at a given frequency based on the customer trust level. It is possible for an observant customer to predict the transaction in which they will be audited, and potentially modify their behavior based on the knowledge that they will be audited. Adding more input, such as random chance to the audit decision, makes it much more difficult for a customer to predict when they will be audited. This in turn makes audit performance a more reliable measure of customer trust.

Trust Level Management additional scoring inputs configuration

The Additional Scoring Inputs feature adds additional data elements to the TLM audit classes described in the preceding sections. Specifically, Additional Scoring Inputs adds the following additional data elements to the TLM_AUDIT_CLASS table.

PERCENT_CHANCE

The percent chance an audit will be triggered for any given transaction, assuming the shopper has not reached the maximum number of Mobile transactions allowed without an audit (see MAX_TRANS_NO_AUDIT). Each audit class can have a separate value for PERCENT_CHANCE.

Trust Level Management scoring based on audit history administration

The Additional Scoring Inputs feature adds the following debug messages:

```
[8/26/13 18:51:32:759 EDT] 00000021 AuditStrategy 1   MobileAudit: Random audit will be performed based on random
number 1 and percent chance 5
[8/26/13 18:51:32:759 EDT] 00000021 AuditStrategy 1   MobileAudit: Randomly selected for Audit
```

These messages indicate that the transaction was randomly selected for an audit.

```
[8/26/13 18:51:32:759 EDT] 00000021 AuditStrategy 1   MobileAudit: Setting CustomerId to 400661966817
[8/26/13 18:51:32:759 EDT] 00000021 AuditStrategy 1   MobileAudit: Setting CustomerTrustLevel to 100
[8/26/13 18:51:32:759 EDT] 00000021 AuditStrategy 1   MobileAudit: Setting CustomerNumAudits to 10
[8/26/13 18:51:32:759 EDT] 00000021 AuditStrategy 1   MobileAudit: Setting TypeOfAudit to SPOT_AUDIT
[8/26/13 18:51:32:759 EDT] 00000021 AuditStrategy 1   MobileAudit: Setting NumItemsToScan to 3
[8/26/13 18:51:32:759 EDT] 00000021 AuditStrategy 1   MobileAudit: Setting NumFailedItemsAllowed to 2
[8/26/13 18:51:32:759 EDT] 00000021 AuditStrategy 1   MobileAudit: Setting RandomAudit to true
```

These messages specify the audit parameters based on the audit class that will be returned in the audit response.

Mobile Reporting Web Application

The following sections describe the Mobile Reporting Web Application. In order to support Mobile Reporting, customer IDs must be present in transactions.

Log in Page

The Mobile Reporting Web Application is restricted to users configured in WebSphere with a role of administrator. See the WebSphere installation instructions for more information about defining users. Log into the Mobile Reporting Web at https://mobilewebhostname/mobileReporting:9443. Your URL may change depending on your host name. Next, enter the username and password and press **OK**.

See Figure 28 for the screen layout.

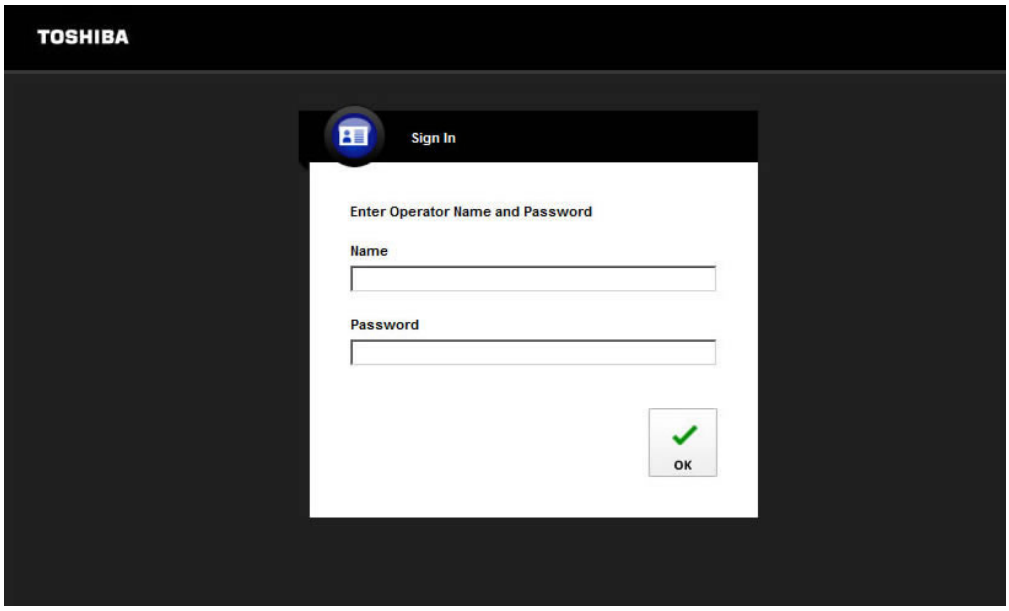

Figure 28. Mobile Reporting Log In Page

Daily Statistics Page

The Daily Statistics Page displays the statics for all mobile transactions performed today. See Table 12 that shows how the information is displayed.

Table 12. Daily Statistical Information

Current Transactions	The number of mobile transactions currently in the store.
Total Audits	Total number of audits performed.
Total Passed Audits	Total number of audits that passed.
Total Failed Audits	Total number of audits that failed.
Maximum Concurrent Transactions	The maximum number of mobile transactions at any given time during the day.
Total Transactions	Total number of mobile transactions today.
Total Incomplete Transactions	Total number of incomplete transactions. These are transactions that were voided on the device, the pay station or the customer walked out of the store.
Total Sales Amount	Total currency amount of all mobile transactions.

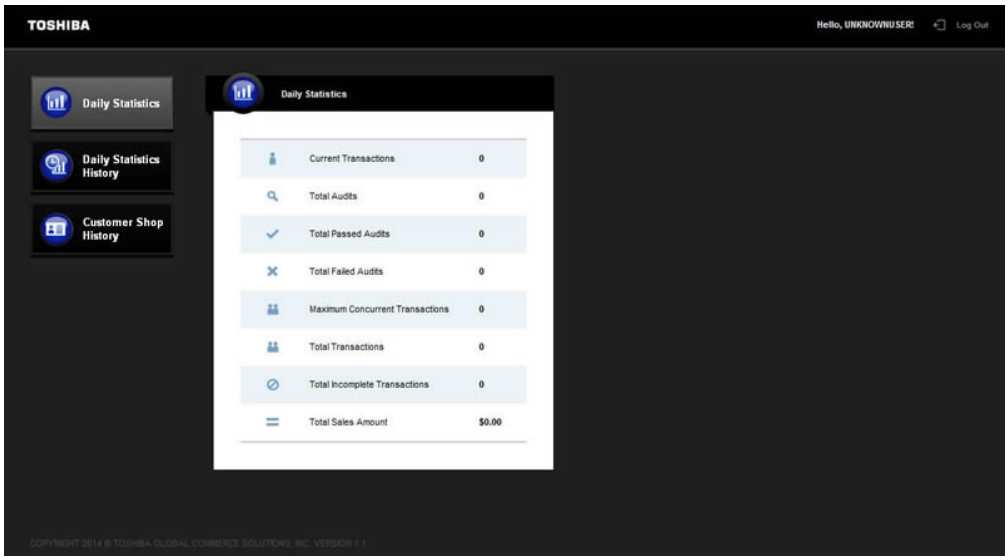

Figure 29. Mobile Reporting Daily Stats Page

Daily Statistics History Page

You can search for past daily statistics based on a user-selected date range. Future date searches are not allowed, and the start date cannot be greater than the stop date (see Figure 30 on page 73).

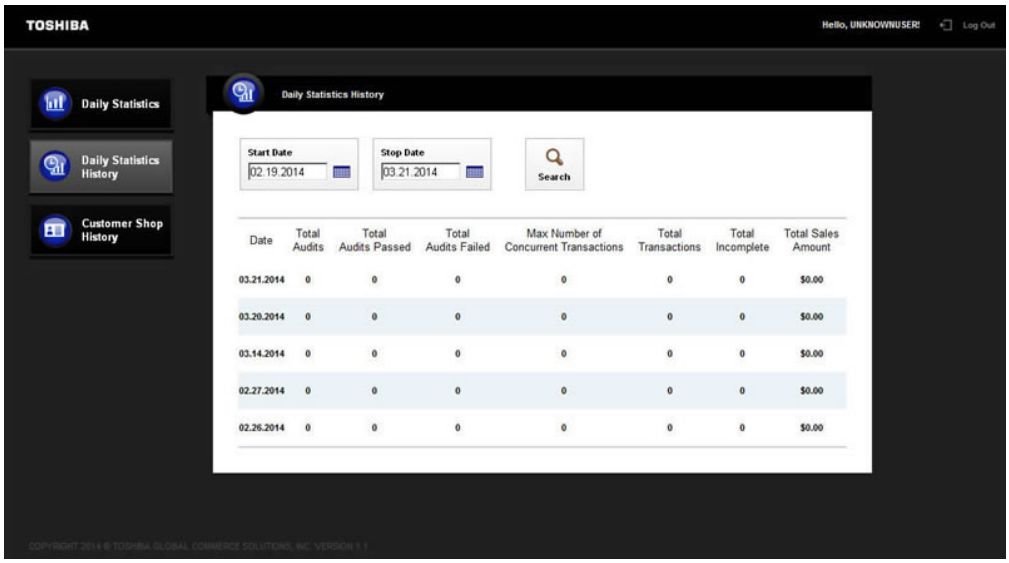

Figure 30. Mobile Reporting Daily Stats History Page

Customer Shopping History Page

The shopper can search for customer and transaction information by date range and hour range. Each row in the table summary will represent one transaction. Dates prior to the current day's date are not allowed and the start date cannot be greater than the stop date. Also, the start hour cannot be greater than the stop hour and all searches are based solely on the End Time. The Start Time is not considered.

Table 13 shows how the information is displayed in each row.

Table 13. Customer Shopping Daily Statistical History Information

Customer ID	The unique identifier of the customer, Loyalty ID, or Price Plus Number.
Customer Name	The name of the customer
Start Time	The time that the transaction started.
End Time	The time that the transaction ended.
Total Items	Total number of items in the mobile transaction. This does not include items added or removed at the pay station.
Total Amount	The total currency amount of the transaction. This does not include items added or removed at the pay station.
Audited (Y/N)	A yes or no, indicated whether the transaction was audited.
Transaction Number	The unique identifier of the transaction, within the store.
Pay Station Terminal ID	The unique identifier of the pay station, used for check out within the store.
Device ID	The unique identifier of the mobile device.

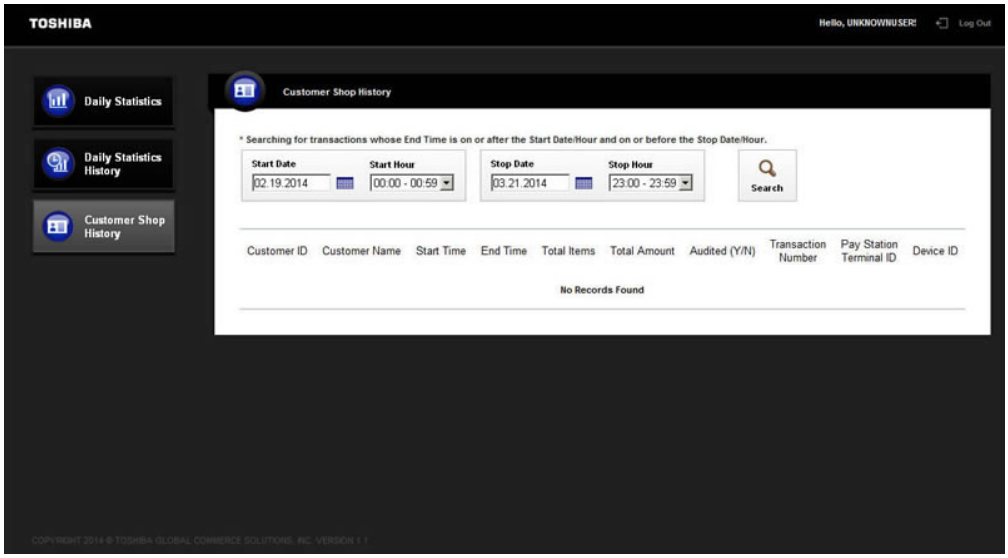

Figure 31. Mobile Reporting Customer Shop History Page

Chapter 8. Using the Mobile Shopper application

This section provides information on how to use the Mobile Shopper.

Smart phone application

The Android and iOS® application user interfaces are very similar. The following screens have been captured from an Android application. Any significant differences between the Android and iOS application screens are described in the following sections.

Phone screen layout

The layout of the main screen of the Mobile Shopper application is shown in Figure 32.

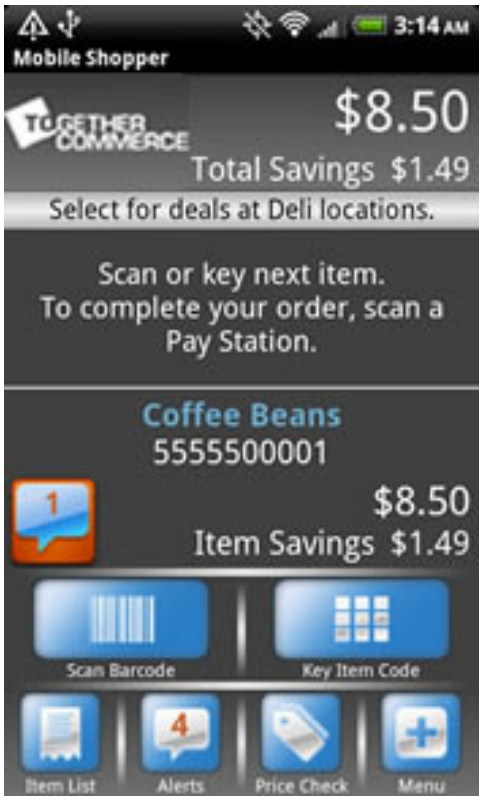

Figure 32. Phone screen layout

Menu layout

The following are the menu layouts that are available.

Menu layout with no Items in the transaction

When the **Menu** icon is selected prior to a transaction being started, the mobile device displays the screen, as shown in Figure 33 on page 76. From this menu, the shopper can select the following options:

- **Settings**: To modify the application configuration.
- **Help**: To view information about using the application.

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- **Instructional Video**: To see a video about using the application. How the mobile system is configured determines whether or not this is displayed.
- **Cancel Transaction**: To exit the application.

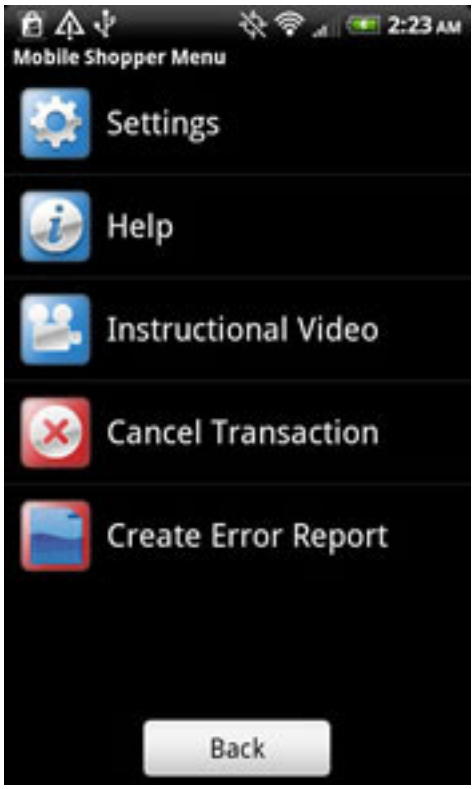


Figure 33. Mobile Shopper menu with no items in transaction

Note: iOS information:

- The **Settings** option does not appear on the application menu. Settings are accessed through the settings area of the iOS and not within the application menu.
- A traditional application navigation bar on the top of the screen is used for screen navigation on the iOS. The navigation bar contains a button to return to the previous screen. There is no **Back** button at the bottom of the screen.

From the **Mobile Shopper** menu, a shopper can select:

1. **Settings**: (Accessed using the iOS settings area) allows the shopper to:
   a. Enter or change their loyalty number. No default is specified.
   b. Enable or disable the ability of the mobile device to vibrate when a new alert arrives. The default is "On".
   c. Enable or disable the ability for the mobile device to play an alert sound when a new alert arrives. The default is "On".
   d. Select the screen orientation (Left Hand and Right Hand). The default is "Right Hand".
   e. Select the text language you want to display.
   f. Display the application version information.
   g. Put the application in debug mode.

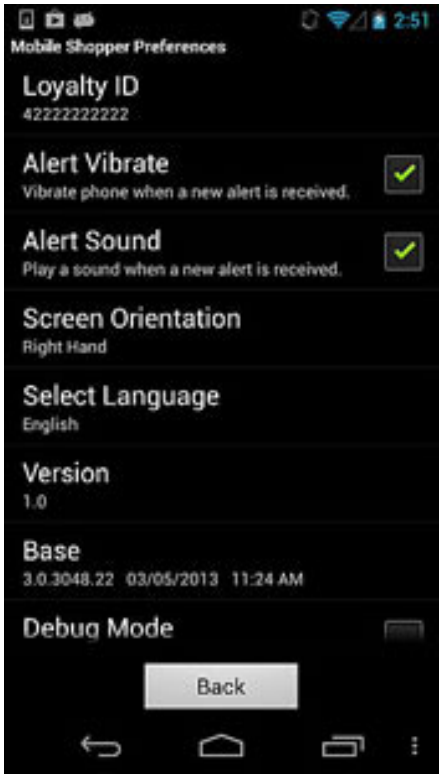


Figure 34. Menu shopper preferences

2. **Help**: Shows the shopper how to use the application with screens similar to the following:

Table 14. Mobile Shopper Help

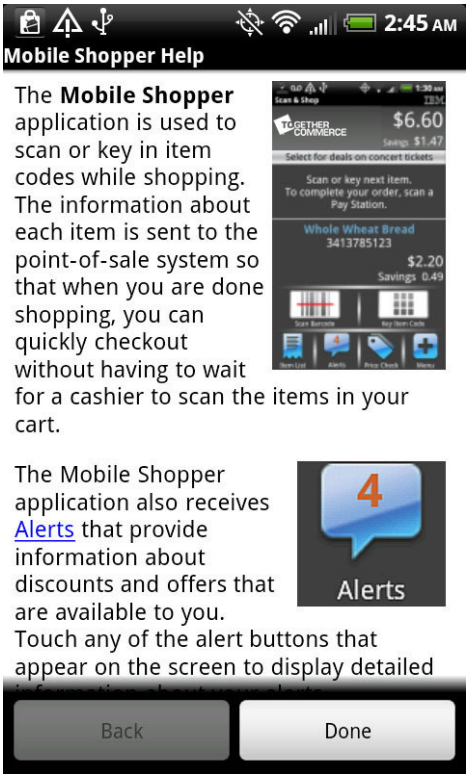

2:45 AM
Mobile Shopper Help
The Mobile Shopper application is used to scan or key in item codes while shopping. The information about each item is sent to the point-of-sale system so that when you are done shopping, you can quickly checkout without having to wait for a cashier to scan the items in your cart.
The Mobile Shopper application also receives Alerts that provide information about discounts and offers that are available to you.
Touch any of the alert buttons that appear on the screen to display detailed
Back
Done

Figure 35. Mobile Shopper help (1 of 2)

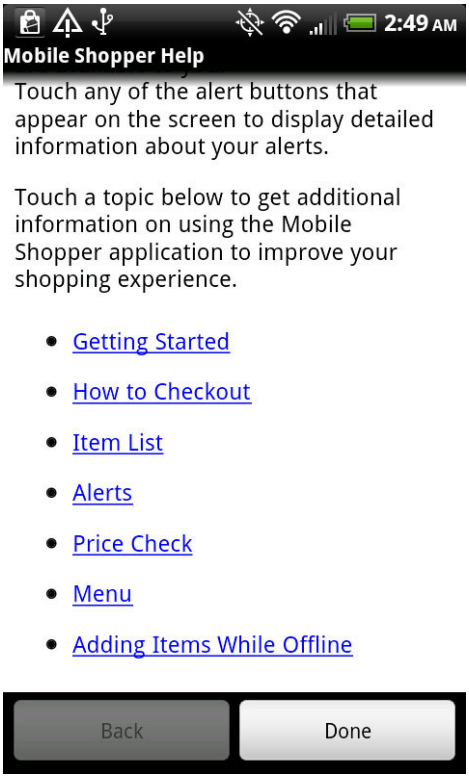

2:49 AM
Mobile Shopper Help
Touch any of the alert buttons that appear on the screen to display detailed information about your alerts.
Touch a topic below to get additional information on using the Mobile Shopper application to improve your shopping experience.
Getting Started
How to Checkout
Item List
Alerts
Price Check
Menu
Adding Items While Offline
Back
Done

Figure 36. Mobile Shopper help (2 of 2)

3. **Instructional Video**: Launches the mobile device web browser to play a shopper-oriented instructional video. This option will not be displayed on the menu if a URL has not been defined in the Mobile Shopper configuration (see the `instructional.video.url` property in the `mobileserver.properties` file or one of its extensions. See “Property extension mechanism” on page 201 for details.
4. **Cancel Transaction**: Cancels the existing transaction, exits the application, and disconnects from the store's WiFi network if using the Android application.
5. **Create Error Report**: Creates an error report from the mobile device and sends the information to the Mobile Engine where it is written to the Mobile Engine diagnostic log file. This is only displayed when the debug mode is enabled in **Settings**.

Menu layout with items in the transaction

When the **Menu** icon is selected after one or more items have been added to the transaction, the mobile device displays an expanded menu of selections (see Figure 37 on page 79). From this expanded menu, the shopper can select the following options:

- **Apply eCoupons**: To perform a complete analysis of the transaction and apply any coupons that are applied only when the transaction is totaled.
- **Remove Item from Cart**: To remove an item from the cart by scanning or keying in the item number (see “Removing items” on page 95).
- **Setting**, **Help**, **Instructional Video**, **Cancel Transaction**, and **Create Error Report** (not shown): The same as described in “Menu layout with no Items in the transaction” on page 75.

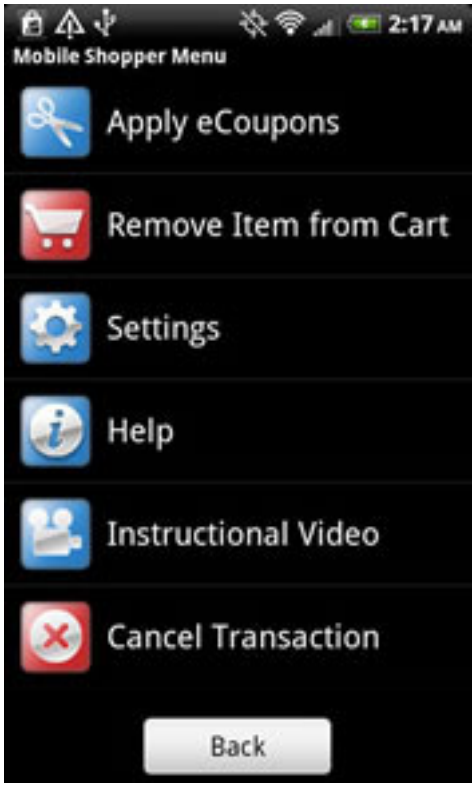


Figure 37. Mobile Shopper menu with items in the transaction

Mobile Shopper POS screen flows

The following sections show the screen flows for the Mobile Shopper point of sale (POS) solution.

Normal checkout: start application, sell item, price check, complete Txn.

Table 15. Normal checkout

Mobile Device Display	Customer Steps	Notes/Message Flow
Figure 38. Shopper enters store	The customer enters the store and starts the retailer-branded mobile phone application.	This icon shows the application as if it is a "Together Commerce" branded application. The scenario assumes the shopper has already downloaded and installed the application, and that this is the first time they have shopped in the store.

Table 15. Normal checkout (continued)

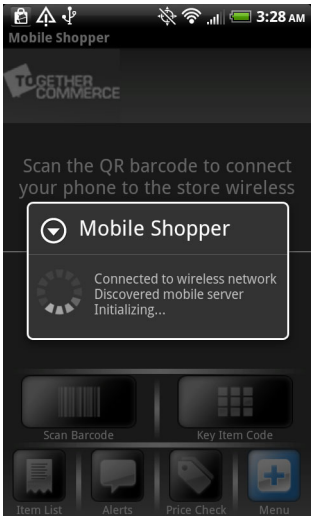
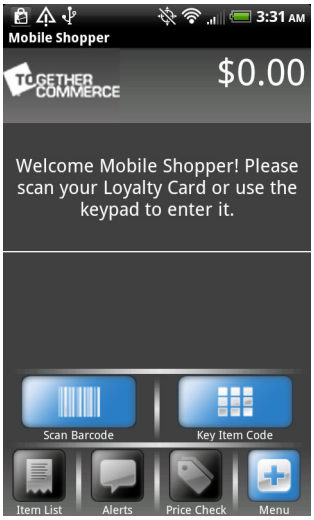
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 39. Mobile phone application connects to retailer's WiFi*		The mobile phone application connects to the retailer's WiFi network and shows multiple messages to indicate its progress. The messages include: • **Connecting...Please wait...** which indicates the mobile device is connecting to the WiFi network. • **WiFi connected. Discovering mobile server...** which indicates that the connection has been made with the store's network and the mobile device is attempting to connect to the Mobile Engine. • **WiFi connected. Discovered mobile server. Initializing...** which indicates that the connection has been made with the Mobile Engine and transaction initialization has started. This prompt is only displayed if the loyalty number is required, as specified by the `loyalty.id.required.for.transaction=true property` in the `mobileserver.properties` file.
 *Figure 40. Scan Loyalty Card*	Scan the **Loyalty Card** or key in the loyalty number.	The first time the application is started, the customer is prompted to enter their loyalty number. The loyalty number can be scanned or keyed. If the retailer's POS system supports a 10-digit alternate ID, the customer can enter that here. After the loyalty number is entered, it is stored in **Settings** and does not have to be entered again.

Table 15. Normal checkout (continued)

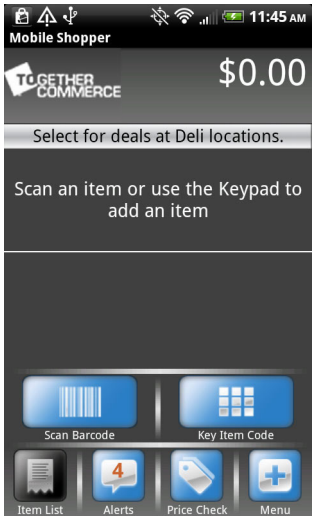
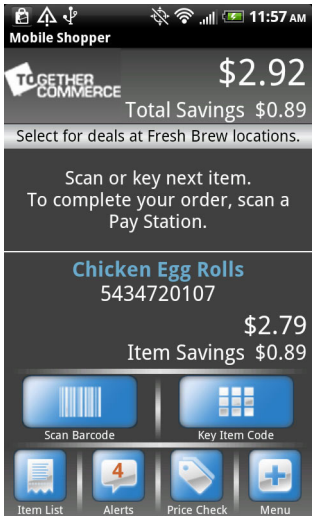
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 41. Prompt for an item*		After entering the loyalty number, or if the loyalty number has already been entered or is not required, the mobile device shows this screen (see Figure 41) that prompts for an item entry. At this point, the customer can scan or key an item to add it to the transaction, or perform a price check by pressing the **Price Check** icon.
 *Figure 42. Scan Barcode*	Press the **Scan Barcode** button and scan "Chicken Egg Rolls".	While the application is looking up the item, the mobile device displays the message "Processing scanned data..." After the mobile device adds the item to the order, item details are displayed and transaction totals are updated. The prompt now asks the customer to scan or key the next item, or scan a pay station to complete the order.

Table 15. Normal checkout (continued)

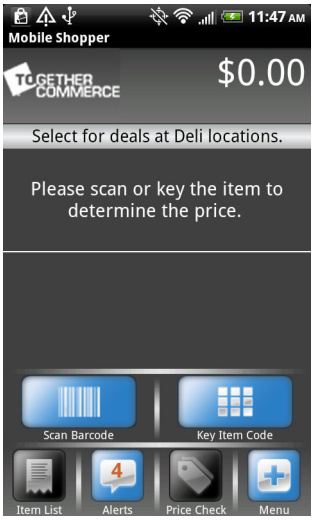
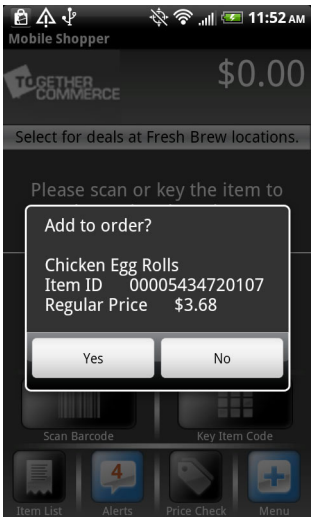
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 43. Price Check*	Press the **Price Check** icon to check the price of an item.	The mobile device prompts the customer to scan or key in an item to determine the price.
 *Figure 44. Press Scan Barcode*	Press the **Scan Barcode** button and scan "Chicken Egg Rolls".	1. The mobile device displays the price of the item. 2. The customer can enter **Yes** to add the item to the order, or enter **No** to return to item entry. **Note:** If the item has a loyalty price, it is ***not*** the price that will be shown for the price check. The regular price is shown due to base ACE behavior for the Price Check function. If the customer presses **Yes** to add the item, the loyalty price is the price of the item that is added to the transaction.

Table 15. Normal checkout (continued)

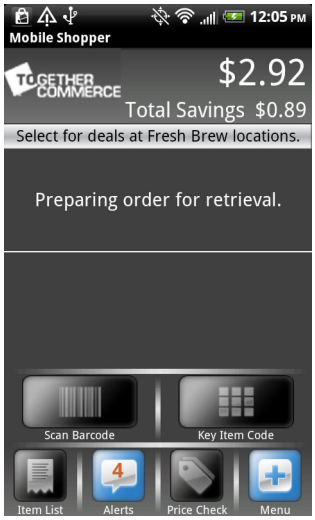
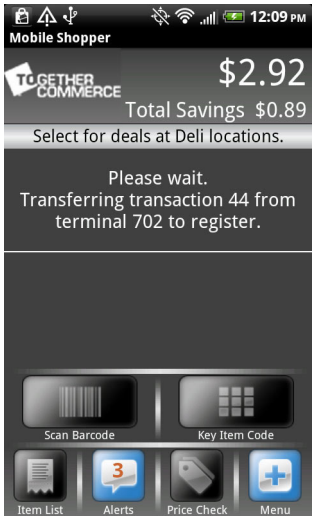
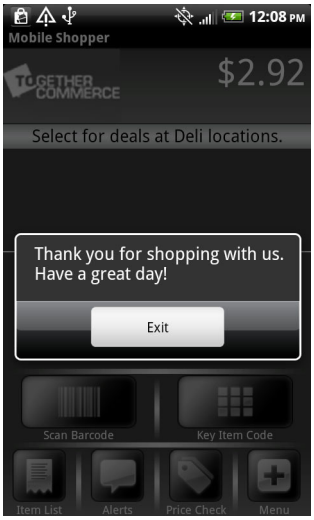
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 45. Scan Barcode - pay station or POS terminal*	Press the **Scan Barcode** icon and scan the barcode displayed on the pay station or POS terminal in order to complete the transaction. The mobile device shows the message "Preparing order for retrieval."	The mobile device shows the message "Preparing order for retrieval." Every pay station and POS terminal will use a single barcode to specify the terminal number that indicates the end of an order.
 *Figure 46. Transaction number and terminal number*		The mobile device will display the transaction number and terminal number until the order is accepted at the terminal. The Checkout Lane must be in a state to receive the order: "logged on and not in a transaction". If the Checkout Lane is not in a state to receive an order, the mobile device will prompt the customer to scan again or have the cashier retrieve the transaction.

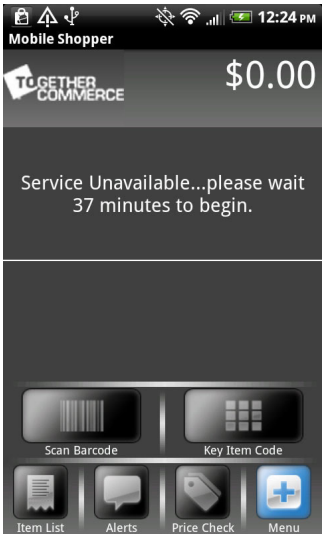
Table 15. Normal checkout (continued)

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 47. Press Exit*	Press **Exit** to exit the application.	After the transaction is retrieved at a pay station (either self-service or attended), the Mobile Shopper application ends.

Starting Mobile Shopper during a blackout period

Blackout periods can be defined in the `mobileserver.properties` file or one of its extensions (see “Property extension mechanism” on page 201). If a shopper attempts to begin an order by starting the Mobile Shopper during a blackout period, they will not be allowed to start the order. Blackout periods should be configured to coincide with the times that the store does not want to enable mobile shopping.

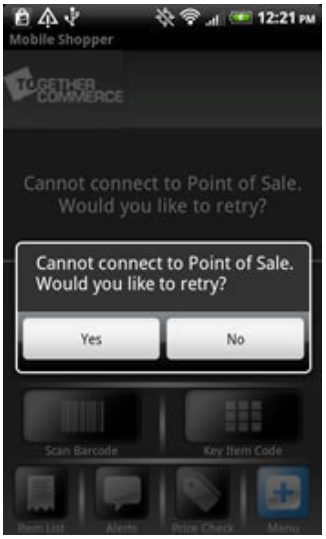
Table 16. Mobile Shopper - during a blackout period

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 48. Starting the Mobile Shopper during a blackout period*	Customer starts the Mobile Shopper during a "blackout period".	The current system time falls within a blackout period, as defined in the `mobileserver.properties` file or one of its extension files. The remaining time in the blackout period is displayed. When the display timer expires, the mobile device attempts to start a transaction automatically. To end this function, press the **Back** button on the mobile device. For an Android phone, the customer can use the hardware **Back** button. For an iOS phone, the customer can press the **Home** button to exit the application.

Starting the Mobile Shopper when not enough Client Session Server sessions

If a customer attempts to begin an order by starting the Mobile Shopper and there are not enough Client session Server (CSS) sessions, the application ends.

Table 17. Mobile Shopper - not enough CSS sessions

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 49. Mobile Shopper - not enough CSS sessions*	1. Start the application when there are not enough CSS sessions to start the transaction. 2. Press **Yes** to retry, or **No** to end the phone application.	The mobile device shows the following screen and a chance to retry.

Various item exceptions

This scenario describes an attempt to sell an item under any one of the following conditions:

- Item is not in the ACE item file.
- Item is configured as "not for sale" in the ACE item file.
- Item is configured as "price required" in the ACE item file.
- Too many items purchased.

These scenarios involve exceptions, but they are handled differently:

- Item is configured as "quantity restricted" in the ACE item file and the maximum number of items has already been sold (the restrictions are defined in ACE Personalization).
- Item requires an account number (such as Gift Card activation) in the ACE item file.
- Item has a barcode that includes an account number for the item (such as Blackhawk One-Stop Gift Cards).
- EAS items follow the Normal Checkout flow, but they do log an exception.

Note: UPC-2 items, other item types (deposit items and miscellaneous sale items), other pricing methods (1-4) all work like normal sale items. See “Normal checkout” on page 162 for these items. The mobile device must be in a "ready to scan" mode.

Table 18. Mobile Shopper - various item exceptions

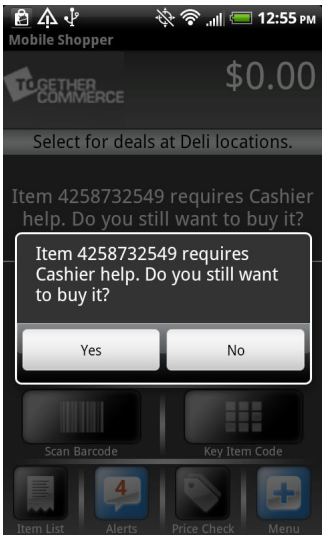
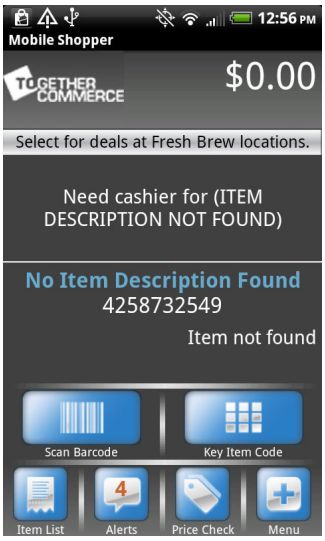
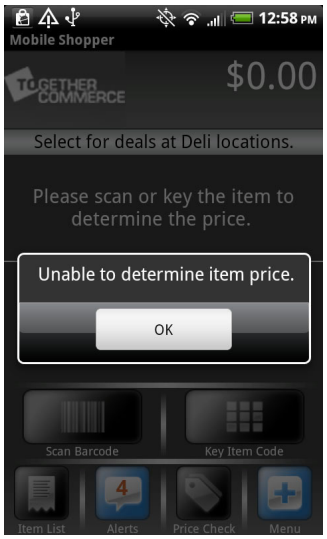
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 50. Scanning a product that is not found*	1. Press **Scan Barcode** and scan a product not found in the ACE item file. 2. Press **No** to return to **Item Entry**. 3. Press **Yes**, and the item is added to the order.	Application prompts: `"Item requires Cashier help. Do you still want to buy it?"` The display is the same for all these exceptions: • Item not found • Not auth for sale • Price-Required • Time-Restricted • Too many items purchased
 *Figure 51. Item exception*	Scan or key in more items at this point.	Assuming the customer pressed **Yes** to purchase the item anyway, an item exception is registered that will be visible to the cashier at checkout time. The item is displayed and appears in the item list, but no price is included in the totals and the details of the exception will be shown on the screen - the example is "Item not found". The display will vary based on the item exception: • Item not found • Not authorized for sale • Price-Required • Time-Restricted • Too many items purchased

Table 18. Mobile Shopper - various item exceptions (continued)

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 52. Price Check - item not in the item file*	1. Press **Price Check**, and scan an item that is not in the item file. The mobile device responds that a price is not available for this item. There is no chance to add the item. 2. Press **OK** to continue with the order.	The display is the same for these item exceptions: • Item not found • Not authorized for sale These exceptions will show a price and allow you to add the item to the order: • Price Required (price is zero) • Time-Restricted

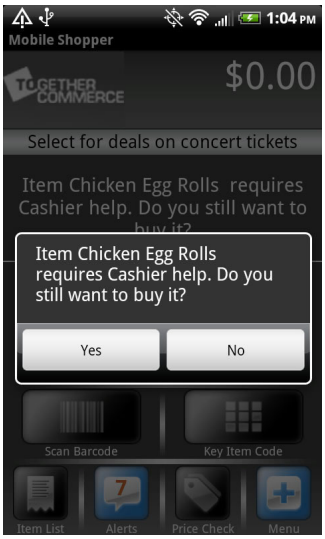
Item type not allowed to be sold exceptions

This scenario describes an attempt to sell an item that is only allowed to be entered at the pay station by a cashier. The item types that are not allowed on the mobile device are:

- Item is configured as "not for sale" in the ACE item file.
- Item is configured as a "refund" item type in the ACE item file.
- Item is configured as a "deposit return" item type in the ACE item file.
- Item is configured as a "miscellaneous payout" item type in the ACE item file.

Note: UPC-2 items and other item types (deposit items and miscellaneous sale items), other pricing methods (1-4) all work like normal sale items. See “Normal checkout” on page 162 for these items. The mobile device must be in a "ready to scan" mode.

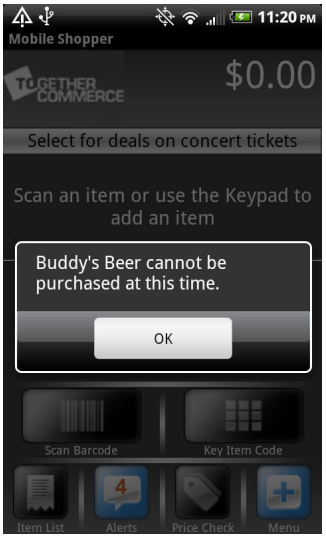
Table 19. Mobile Shopper - item not allowed to be sold exceptions

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 53. Item not allowed to be sold using the mobile device*	1. Press **Scan Barcode**, and key in an item code of an item type that is not allowed to be sold using the mobile device. In Figure 53 the item to be scanned is "Chicken Egg Rolls". 2. Press **OK** to return to the item entry.	Application prompts: "Item name requires Cashier help. Do you still want to buy it?" If the customer presses **Yes**, an exception is logged that will have to be resolved at checkout by a sales associate.

Time restricted item entry

This scenario describes an attempt to sell an item that is only allowed to be sold at certain times based on time restrictions defined in ACE personalization. The mobile device must be in a "ready to scan" mode.

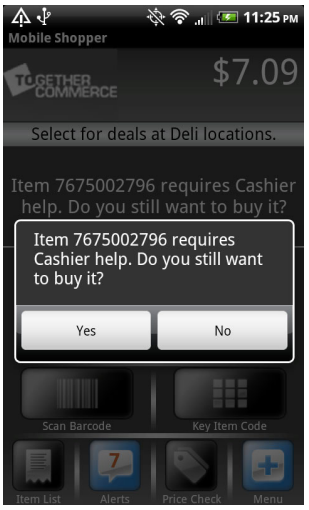
Table 20. Time restricted item entry

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 54. Time restricted item entry*	1. Press **Scan Barcode** and scan a product that is not allowed to be sold at this time. 2. The application prompts: "Buddy's Beer cannot be purchased at this time". 3. Press **OK** to return to the item entry.	The item description displayed on the mobile device matches the item description in the item file.

Value card processing

This scenario describes an attempt to sell an item (such as value cards) that is blocked in the `mobileserver.properties` file or one of its extensions (see “Property extension mechanism” on page 201). The flow is also used for Blackhawk Gift Card processing. The mobile device must be in a ready to be in the "ready to scan" mode.

Table 21. Value card processing

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 55. Scan an item that has been blocked in `mobileserver.properties`*	1. Press **Scan Barcode** and scan an item (such as a value/gift card) that has been blocked in the `mobileserver.properties` file or one of its extensions. 2. The following prompt is displayed: "Item xxxx requires cashier help. Do you still want to buy it?", where ***xxxx*** is the item code that was scanned or keyed in. 3. Press **Yes** to add the item to their order. An exception is added to their order that must be resolved by a sales associate before the customer is allowed to complete their order. If the customer presses **No**, the item is not added to the order.	From the customer’s perspective, this is the same flow for Blackhawk Gift Cards. However, Blackhawk Gift Cards are a different type of bar code (Code 128) and does not need to be *blocked* in the properties file.

Age-restricted item exception

This scenario describes an attempt to sell an item (such as alcohol, tobacco, or fireworks) that is age restricted. The restriction types are defined in “ACE Personalization option changes” on page 50 and set in the Item Data Maintenance for the item.

Table 22. Age-restricted item exception

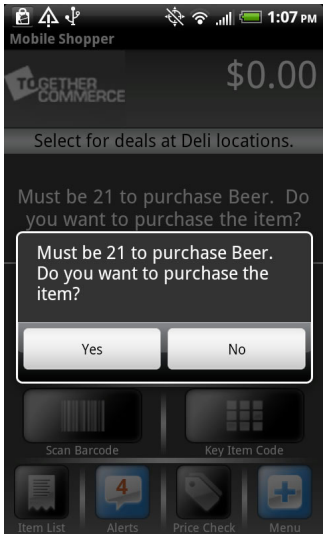
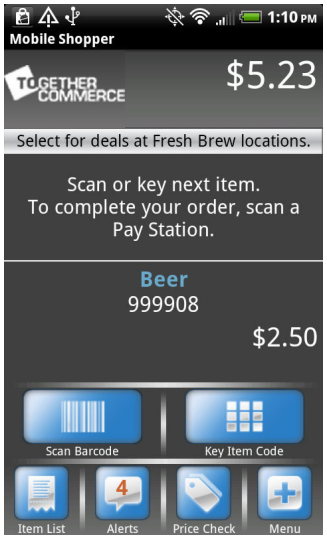
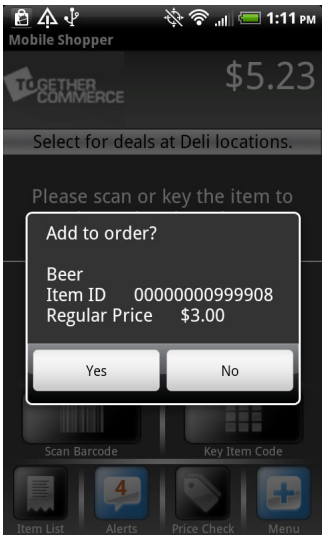
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 56. Age-restricted item exception*	1. Press **Scan Barcode** and scan an age-restricted item. 2. The application prompts: "Must be 21 to purchase. Do you want to purchase the item?" 3. Press **Yes** and the item is added to their order.	The age displayed on the mobile device matches the appropriate age set in the item restriction. After the customer has answered "Yes" to this prompt for a specific age, it is not necessary to prompt the customer again for another item with the same (or lower) age restriction. Press **No** to return to item entry.
 *Figure 57. Scan or key more items*	The customer is ready to scan or key more items.	An item exception is registered that will be visible to the cashier at checkout time.

Table 22. Age-restricted item exception (continued)

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 58. Price Check - age restricted item*	1. Press **Price Check** and scan an age-restricted item. 2. Press **Yes** to add the item, or **No** to continue to the item entry without adding the item.	If the price check is done before an age-restricted item is added to the transaction, and the customer adds the item to the order, a prompt is displayed, "Must be 21 to purchase. Do you want to purchase the item?"

Quantity required item entry

This scenario describes an attempt to sell an item which requires a quantity entry (such as lemons). The **Quantity Required** flag is set in Item Data Maintenance for the item.

Table 23. Quantity required item entry

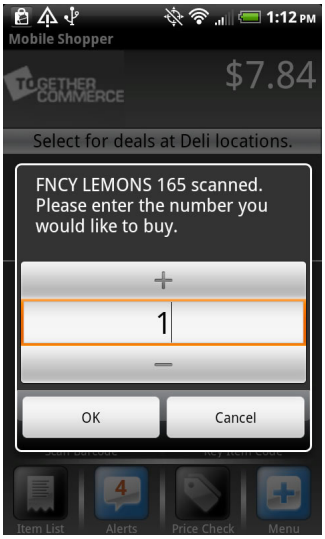
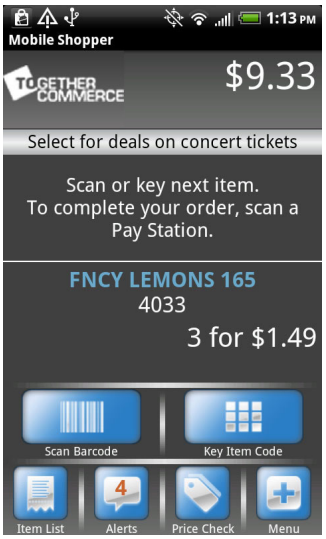
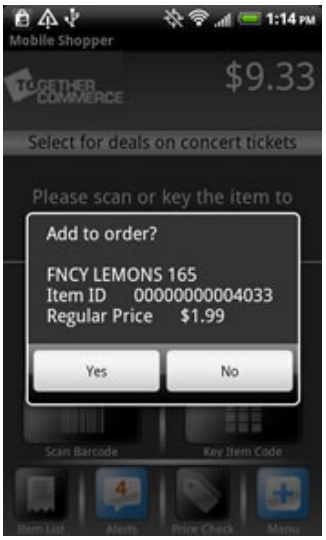
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 59. Scan a quantity required item*	1. Press **Scan Barcode** and scan a quantity required item. 2. The application prompts for quantity. 3. Enter the quantity and press **OK**.	Press **Cancel** to return to item entry. **iOS Note**: The iOS application displays a numeric keypad for the quantity entry.

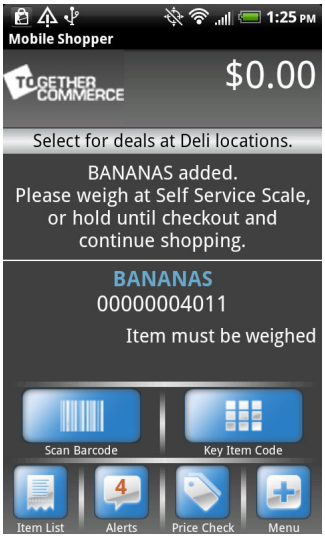
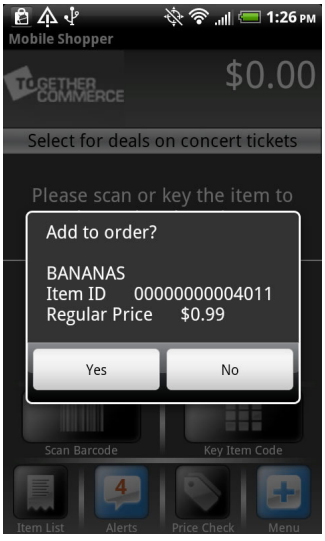
Table 23. Quantity required item entry (continued)

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 60. No exception logged*	Lemons are added to the order. No exception is logged. The customer is ready to scan or key more items.	
 *Figure 61. Price Check - scan or key in a quantity-required item code*	1. Press **Price Check** and scan or key in a quantity-required item code. The price shown is for a single item. 2. Press **Yes** to add the item, or **No** to continue the item entry without adding the item. 3. If the customer presses **Yes** to add the item, they are prompted to enter a quantity for the item.	

Weight required item entry

This scenario describes an attempt to sell an item that requires a weight entry (such as bananas). The **Weight Required** flag is set in Item Data Maintenance for the item. The mobile device must be in a "ready to scan" mode.

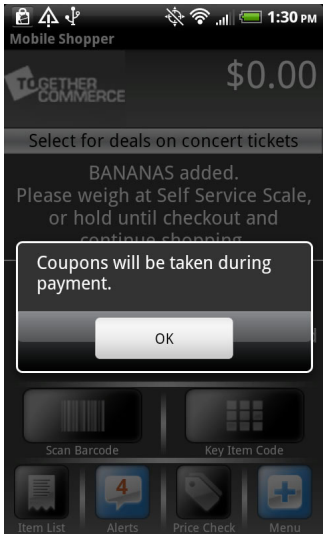
Table 24. Weight required item entry

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 62. Scan a weight required item entry*	1. Press **Scan Barcode** and scan a weight-required item. 2. Application prompts to weigh at the self-service scale or hold for assistance at checkout. 3. The item is added to the transaction as an exception item with no price. 4. The customer is ready to scan or enter more items.	This will generate an exception. However, if the customer goes to the self-service scale to add the item prior to checkout, the exception will be removed. If they do not, the exception will need to be handled during checkout. See “Using the Self-Service Scale for items already in a transaction” on page 102 for details on adding weight items using the self-service scale.
 *Figure 63. Price Check - scan or key in a weight-required item code*	1. Press **Price Check** and scan or key in a weight-required item code. The price shown is for a single unit of measure. 2. Press **Yes** to add the item, or **No** to continue item entry without adding the item.	

Coupon scanned during the transaction

This scenario describes a coupon being scanned during the transaction. The mobile device must be in a "ready to scan" mode.

Table 25. Coupon scanned during the transaction

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 64. Scan Barcode - UPC-5 coupon*	1. Press **Scan Barcode** and press **UPC-5 coupon** during a transaction. 2. The application states that "Coupons will be taken during payment." 3. Press **OK** to continue with item entry.	

Removing items

There are two ways to remove an item:

- Touch the item from the Item Entry screen or from the item list to get the **Item Action Menu**. From this menu, you can view item details or remove the item. Press **Remove** to remove the item.
- Touch the **Menu** icon, and press **Remove Item**. You are prompted to scan or key in an item number to remove the item.

After the item is removed, the display will indicate that the item was removed. It will no longer be in the item list. This is true for all items, including exception items.

Removing an item from the Item Entry screen: This flow demonstrates the steps to remove a normal barcoded item from the **Item Entry** screen. (Items are required as a part of this transaction.)

Table 26. Removing an item from the Item Entry screen

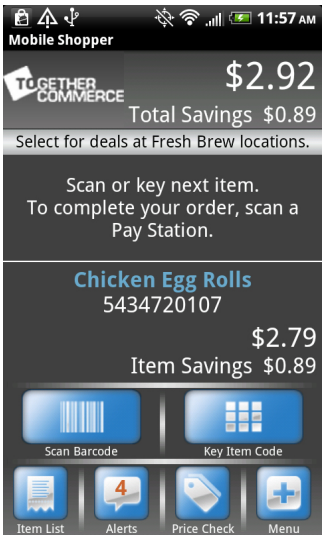
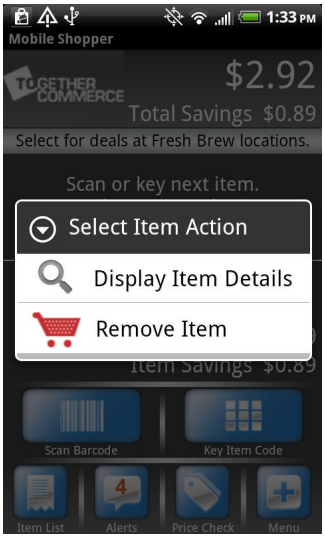
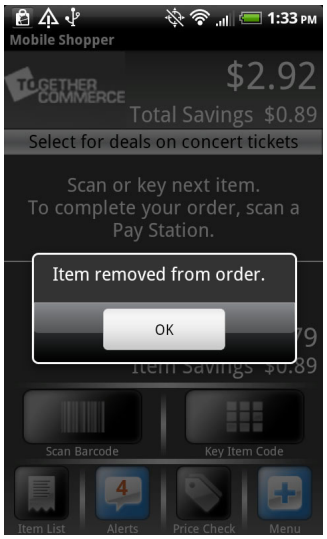
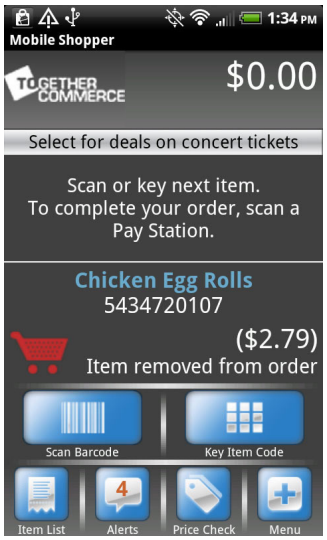
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 65. Removing an item from the Item Entry screen (1 of 4)*	The customer has previously entered **Chicken Egg Rolls**.	
 *Figure 66. Removing an item from the Item Entry (2 of 4)*	Touch the screen inside the box that shows the item description, item number, and price.	

Table 26. Removing an item from the Item Entry screen (continued)

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 67. Removing an item from the Item Entry (3 of 4)*	Press **OK**.	The item is removed. The display indicates that the item was removed.
 *Figure 68. Removing an item from the Item Entry (4 of 4)*		The display indicates that the item was removed. The customer is now in item entry mode.

Removing an item from the Item List: This flow demonstrates the steps to remove a normal barcoded item from the **Item List**. (Items are in the transaction.)

Table 27. Removing an item from the Item List

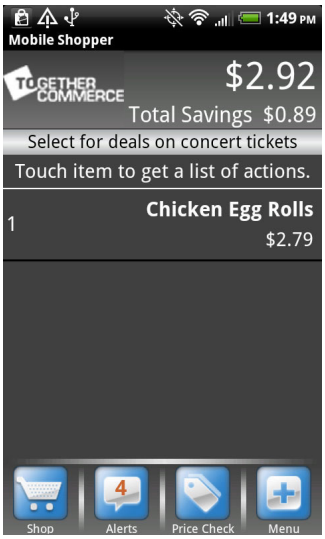
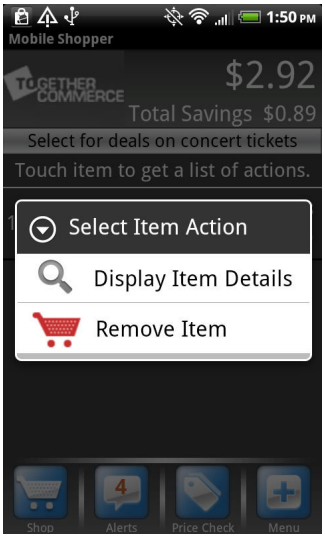
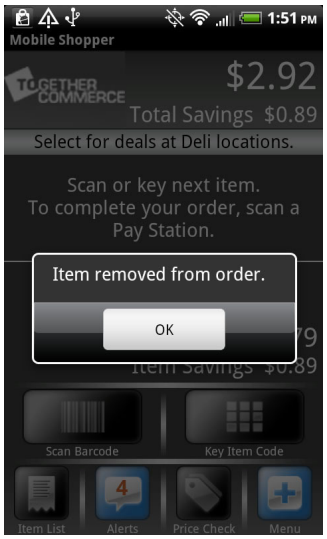
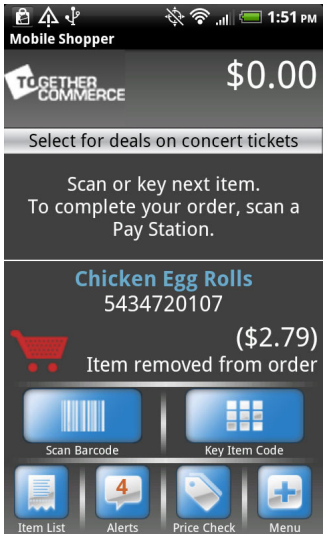
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 69. Press Item List*	Press **Item List** at the bottom of the screen to display the item list.	If the customer presses the **Shop** button here, they will return to item entry.
 *Figure 70. Touch item to be removed*	Touch the item they want to remove. The **Item Action** menu is displayed.	If the customer presses the **Back** button, they will return to item list. **iOS Note**: The customer should do a "swipe" key movement to remove the item from the item list.

Table 27. Removing an item from the Item List (continued)

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 71. Press OK*	Press **OK**.	The item is removed. The display indicates that the item was removed.
 *Figure 72. Item removed is indicated*		The display indicates that the item was removed. The customer is now in item entry mode.

Removing an item using the menu icon: This flow demonstrates the steps to remove a normal barcoded item from the application menu. (Items are required as a part of this transaction.)

Table 28. Removing an item using the menu icon

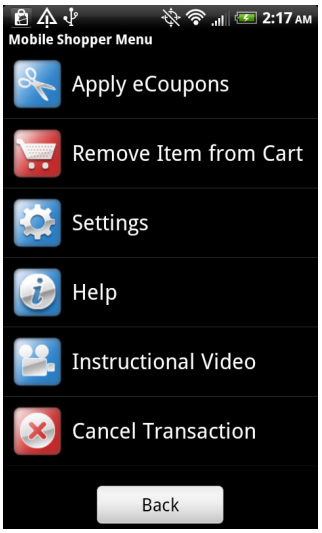
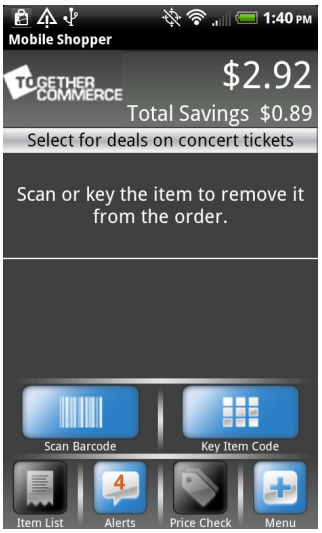
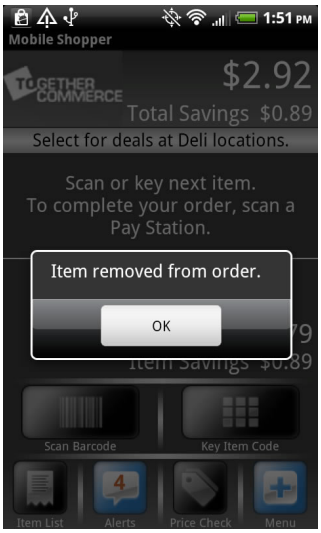
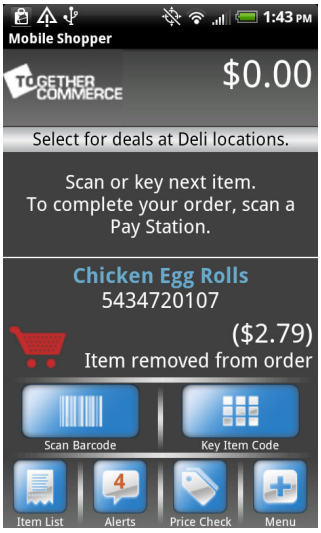
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 73. Press Menu*	Press **Menu** at the bottom of the screen to display the application menu, and press **Remove Item from Cart**.	
 *Figure 74. Scan or key in item wanted*	Scan or key in the item they want to remove.	The customer is prompted to scan or key in an item to remove it from the order.

Table 28. Removing an item using the menu icon (continued)

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 75. Customer presses OK*	Press **OK**.	The item is removed. The display indicates that the item was removed.
 *Figure 76. Item removal is completed*		The display indicates that the item was removed. The customer is now in item entry mode.

Using the Self-Service Scale for items already in a transaction

This flow demonstrates the steps needed when weight items have been added to the mobile device transaction and then the customer goes to the "weights and measures" certified self-service scale (SSScale) to weigh the items. (Items are required as a part of this transaction.)

See “Various item exceptions” on page 168 for details on how these were added. For this example, assume that bananas (weight required) and asparagus (weight required) were added to the transaction.

Table 29. Using the Self-Service Scale for items already in a transaction

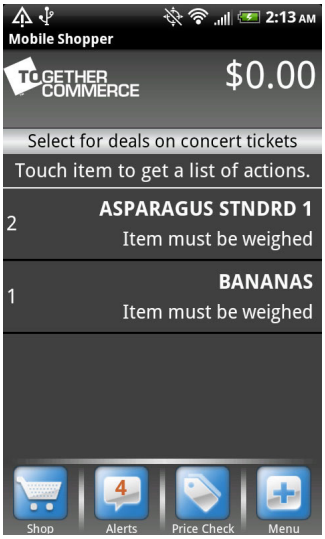
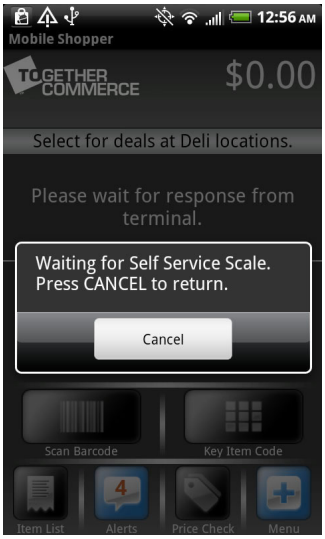
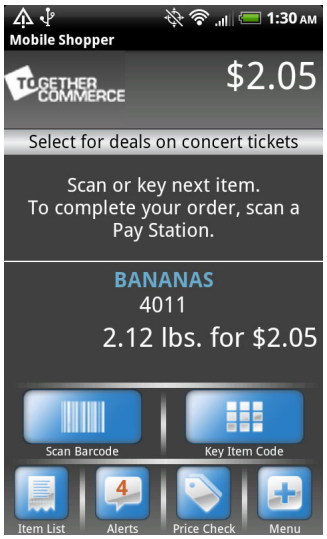
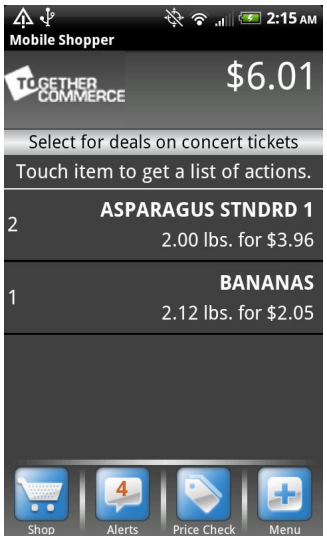
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 77. Press Item List*	Press **Item List**.	The item list displays asparagus and bananas that have not been weighed.
 *Figure 78. Press Scan Barcode on the mobile device*	On the SSScale, press **Scan Barcode** on the mobile device, and "scan the barcode" is displayed on the self-service scale. The mobile device displays: "Waiting for Self-Service Scale. Press **CANCEL** to return."	The SSScale displays the items that were added to the transaction that are required to be weighed. In this example, the icons for bananas and asparagus appear on the scale display. See “Self-Service Scale screen flows” on page 127 for details of how the SSScale operates.

Table 29. Using the Self-Service Scale for items already in a transaction (continued)

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 79. Displaying the screen with "Done" visible*	After all items have been processed (weighed) at the SSScale, the **Done** button is displayed on the base screen. Press **Done** and the scale goes back to the original display.	The mobile device returns to item entry. The price field has been updated for the items that were weighed. The last item weighed at the SSScale is displayed.
 *Figure 80. Item List with prices displayed*	If the customer presses **Item List**, the items are displayed, complete with prices. Press **Shop** to return to **Item List**.	The items that were weighed at the SSScale do not have to be reprocessed at the checkout lane.

Using the Self-Service Scale to add items to a transaction

This flow demonstrates the steps needed to add items with weight or quantity to the transaction using the "weights and measures" certified self-service scale (SSScale). Your mobile device should be in a *ready state* to scan an item and the customer should not have added any weight-required items to the transaction.

Table 30. Using the Self-Service Scale to add items to a transaction

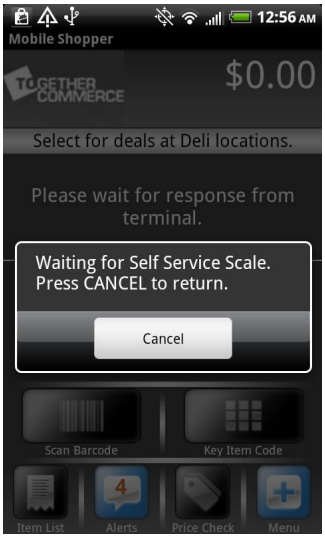
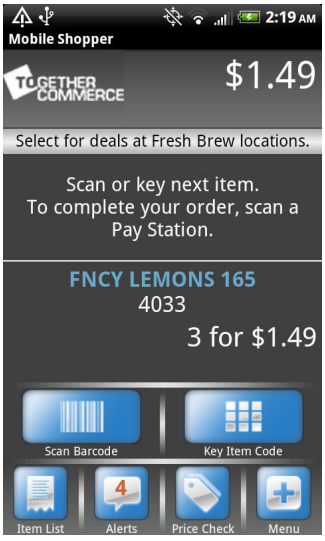
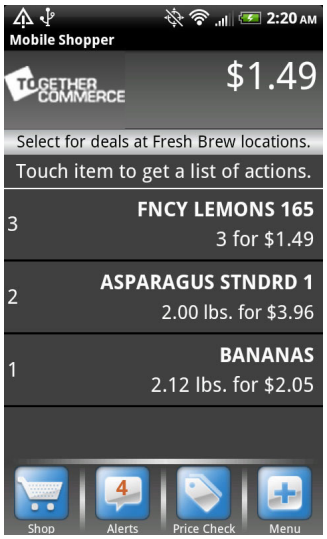
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 81. Self- Service Scale - pressing Scan*	On the self-service scale, press **Scan** on the mobile device, and scan the barcode displayed on the self-service scale. The mobile device displays: "Waiting for Self-Service Scale. Press **Cancel** to return."	Since no items have been previously entered on the mobile device, the SSScale does not display a list of items. Instead, it will just show the main screen where the shopper can either scan an item barcode, key in the product look-up (PLU) number, or search images for an item to add. See “Self-Service Scale” on page 126 for details on how the SSScale operates in this mode.
 *Figure 82. Self-Service Scale - displaying screen with "Done" visible*	After all items have been processed at the SSScale, the **Done** button is displayed on the base screen. Press **Done** and the scale goes back to the original display.	The mobile device returns to item entry. The items processed at the SSScale have been added to the transaction. The last item added at the SSScale is displayed.

Table 30. Using the Self-Service Scale to add items to a transaction (continued)

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 83. Item List - items displayed with prices*	If the customer presses **Item List**, the items are displayed, complete with prices. Press **Shop** to return to Item Entry.	The items that were added at the SSScale will not need to be reprocessed at the checkout lane.

Item details

This flow demonstrates the steps to view the item details for an item that has been added to the transaction.

Table 31. Item details flow

Mobile Device Display	Customer Steps	Notes/Message Flow
 Figure 84. Item details (1 of 4)	The customer has previously entered "Chicken Egg Rolls".	

Table 31. Item details flow (continued)

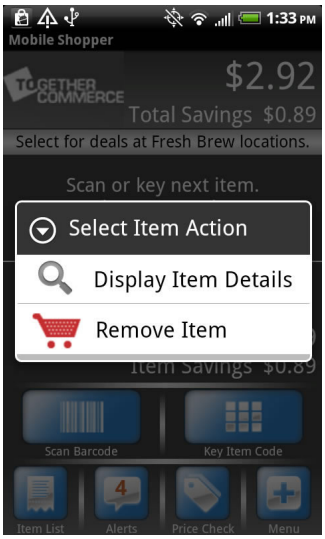
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 85. Item details (2 of 4)*	1. Touch the item and the **Item Action** menu is displayed. 2. Select **Display Item Details**.	If the customer presses **Back**, they will return to the previous screen. For an Android phone, the customer can press the hardware back button to exit this dialog. For an iOS phone, the customer presses **Cancel** to exit.
 Figure 86. Item details (3 of 4)	If you have an Android phone, press the **Back** button at the bottom of the screen to return to the item screen. If you have a mobile device, press the **Back** button in the top navigation to return to the item screen.	

Table 31. Item details flow (continued)

Mobile Device Display	Customer Steps	Notes/Message Flow
Figure 87. Item details (4 of 4)		The customer is now in item entry mode.

Transaction Alerts (mobile screens)

This flow demonstrates the steps to view transaction alerts that can occur during the shopping experience. See “Transaction Alerts” on page 10 for an overview.

Table 32. Transaction Alerts

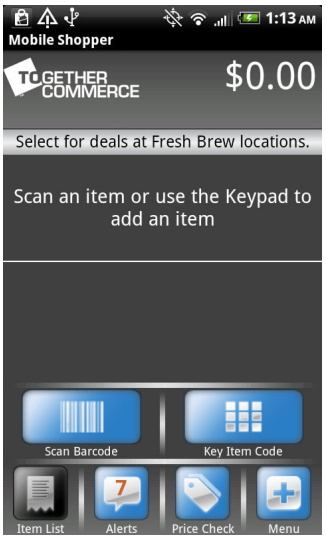
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 88. Customer signed onto the application*	The customer has just signed onto the application.	There are seven new alerts available for viewing on the **Alert** icon. *Figure 89. New alerts* *The number on the **Alert** icon indicates the number of unread alerts that are available.*

Table 32. Transaction Alerts (continued)

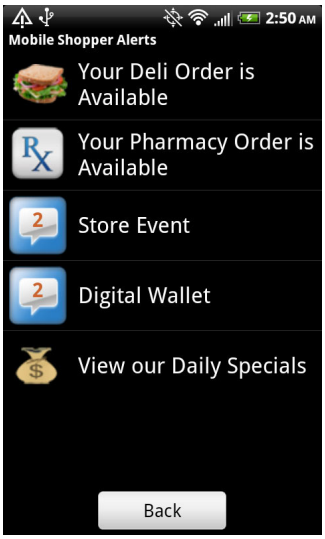
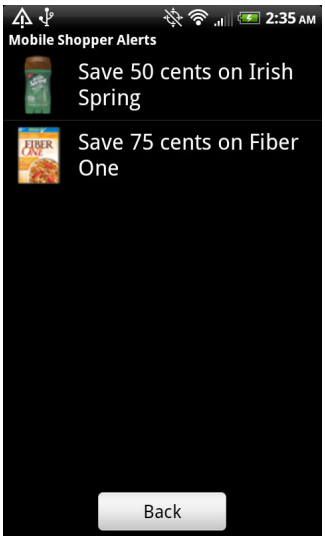
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 90. Transaction Alert icon*	Press the **Transaction Alert** icon and the transaction alerts are displayed.	**Note:** The **Transaction Alert** icon indicated that there were seven unread alerts: • One for Deli Order • One for Pharmacy • Two for Digital Wallet • Two for Store event • One for Daily Special When the customer presses the **Transaction Alert** icon, the mobile phone application sends a message to the Analytics service to track how many times this customer pressed that icon.
 *Figure 91. Digital Wallet icon*	Press the **Digital Wallet** icon.	The system displays all digital coupons that were sent from the POS Integration Hub (that were "downloaded" for this customer). When the customer presses the **Digital Wallet** icon, the phone application sends a message to the Analytics service to track how many times this customer pressed that icon.

Table 32. Transaction Alerts (continued)

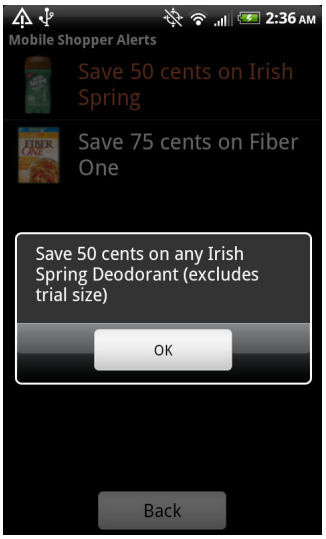
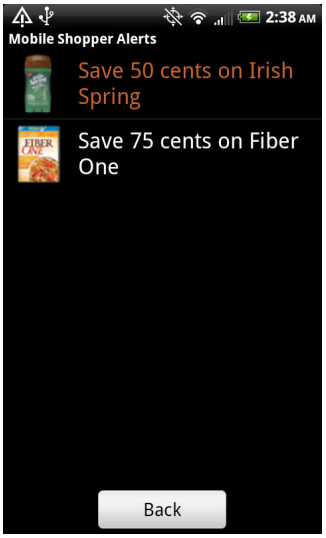
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 92. Irish Spring alert*	Press the **Irish Spring** alert.	The system displays the details for this coupon. The alert can be textual as shown here. It can allow an item to be added, or it can be a web page that will be displayed When the customer presses the **Irish Spring** alert, the mobile phone application sends a message to the Analytics service to track how many times this customer pressed that icon.
 *Figure 93. Pressing OK - Transaction Alerts*	Press **OK**.	The Irish Spring coupon text turns orange to indicate it has already been viewed.

Table 32. Transaction Alerts (continued)

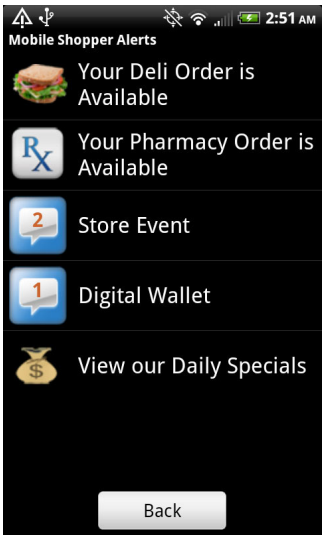
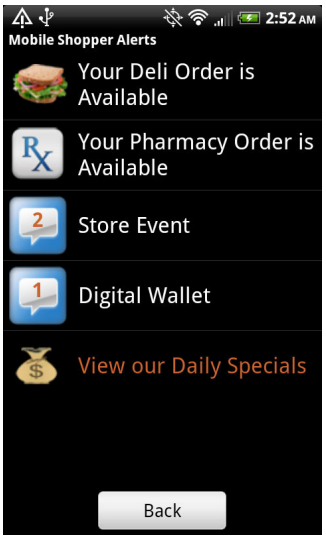
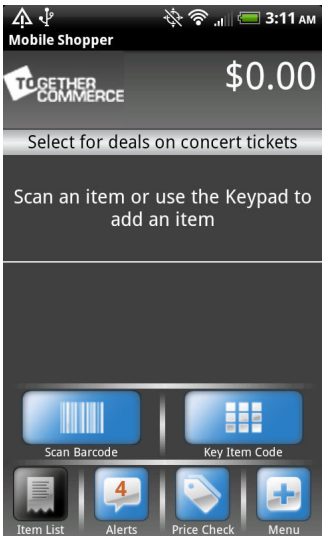
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 94. Pressing Back - Transaction Alerts*	Press **Back**.	The **Digital Wallet** icon now shows one unread alert instead of two.
Figure 95. Viewing daily specials	Press **View our Daily Specials** and you are taken to the website.	For example, this URL goes to the Toshiba Global Commerce Solutions website.

Table 32. Transaction Alerts (continued)

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 96. Back icon - viewing daily specials*	Press **Back**.	The **View our Daily Specials** icon now has orange text to indicate it has been viewed.
 *Figure 97. Showing unread alerts*	Press the **Back** button and the customer is ready to scan items.	The Transaction Alert indicates that there are now *four* unread alerts: one Pharmacy alert, two store event alerts, and one Digital Wallet alert.

Item Alerts

This flow demonstrates how an item alert (up-sell and/or cross-sell) is displayed and can be added to the transaction. See “Item Alerts” on page 10 for an overview.

Table 33. Item Alerts

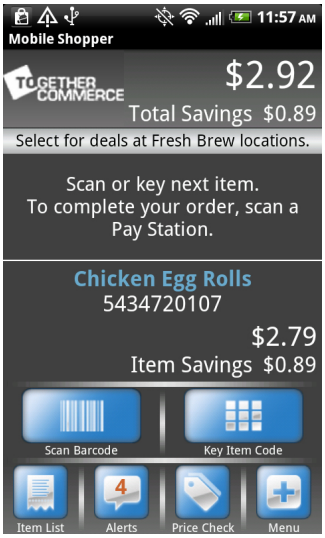
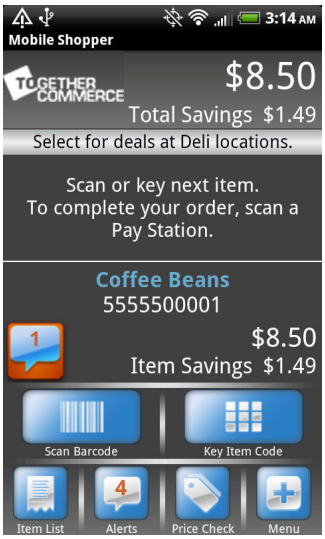
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 98. Item Entry*	The customer is in "Item entry" mode.	There is no item notification icon to the left of the item description.
 *Figure 99. Item Alert icon displayed*	After the customer scans an item that has an item alert, an **Item Alert** icon is displayed to the left of the item information.	The number inside the **Item Alert** icon indicates the number of alerts associated with the item.

Table 33. Item Alerts (continued)

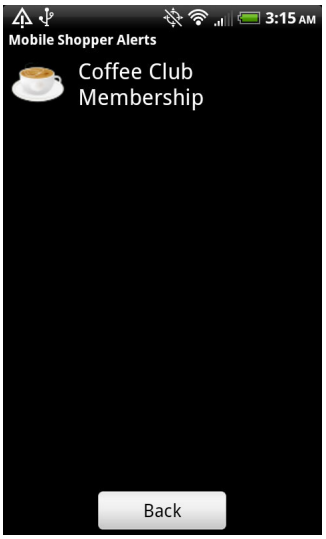
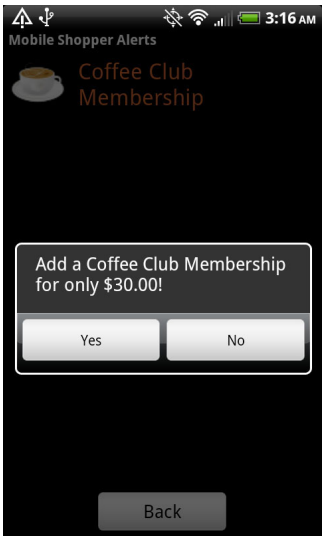
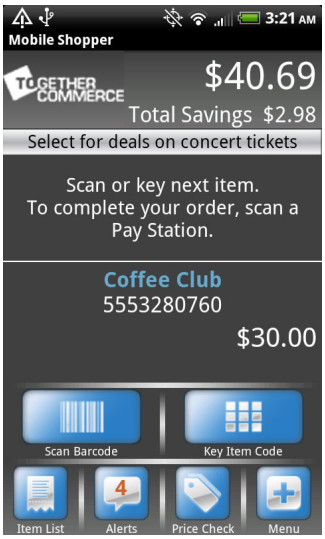
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 100. Pressing Item Alert icon*	Press the **Item Alert** icon for the Coffee Club Membership.	When the customer presses the **Item Alert** icon, the mobile phone application sends a message to the Analytics service to track how many times this customer pressed that icon.
 *Figure 101. Coffee Club Alert*	Press the **Coffee Club** offer.	When the customer presses the **Coffee Club** alert, the phone application sends a message to the Analytics service to track how many times this customer has viewed the alert information.

Table 33. Item Alerts (continued)

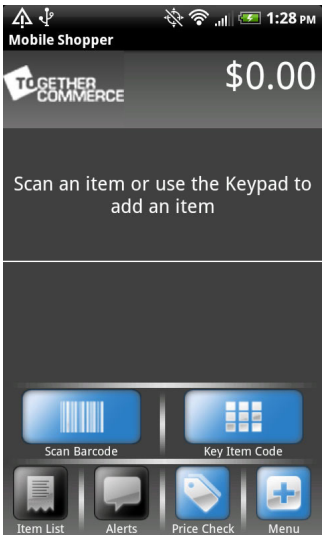
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 102. Pressing Yes - Item Alerts*	Press **Yes** to add the offer to their transaction and the display shows that the Coffee Club item was added to the transaction.	The mobile device sends a message to the Analytics service to track that this customer purchased this item. The customer is now in item entry mode.

Advertisements

Advertisements are intended to be an area on the screen where a retailer could optionally "sell space" on the mobile device for advertisements. See “Advertising Alerts” on page 11 for an overview.

No advertisements sent to the mobile device: Since advertisements are optional, Figure 103 on page 115 shows what the screens would look like with no advertisements being sent.

Table 34. No advertisements sent to the mobile device

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 103. No advertisements sent to the mobile device*	The customer has started the application, but no advertisements are available.	There is no bar between the "Together Commerce" logo and the instructions.

Multiple advertisements sent to the mobile device: Table 35 shows how multiple advertisements are displayed on the mobile device.

Table 35. Multiple advertisements sent to the mobile device

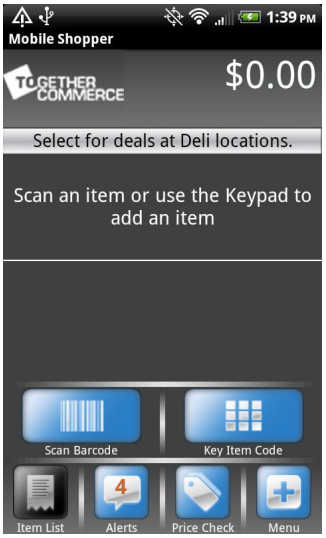
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 104. Multiple advertisements sent to the mobile device (1 of 4)*	The customer has started the application and the first advertisement displays.	There is a bar between the "Together Commerce" logo and the instructions that is touchable and shows all advertisements in a "rolling" display (rolling through the advertisements one at a time as opposed to scrolling constantly across the screen).

Table 35. Multiple advertisements sent to the mobile device (continued)

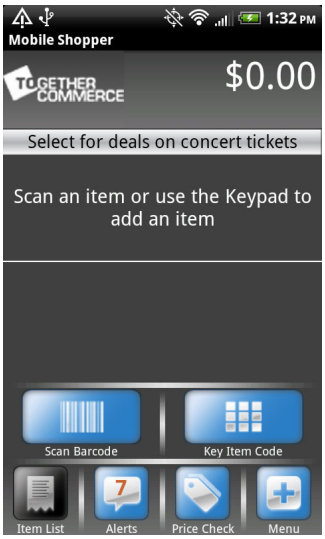
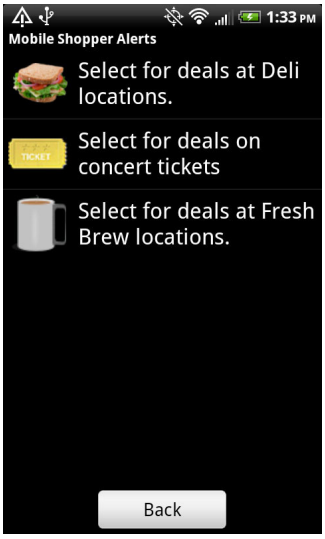
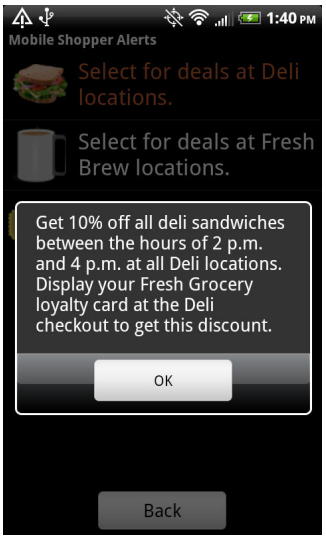
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 105. Multiple advertisements sent to the mobile device (2 of 4)*	Subsequent advertisements display every *xx* seconds.	The amount of time each advertisement is displayed before rolling to the next advertisement is configurable. The default is 5 seconds.
 *Figure 106. Multiple advertisements sent to the mobile device (3 of 4)*	The customer presses the **Advertisement** bar.	A list of advertisements is displayed.

Table 35. Multiple advertisements sent to the mobile device (continued)

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 107. Multiple advertisements sent to the mobile device (4 of 4)*	The customer presses **Select for deals at Deli locations**.	The alert can be textual and can allow an item to be added, or it can be a web page that will be displayed See “Advertising Alerts” on page 11, "Alert types", for details on the types of alerts that can be used. The mobile device sends a message to the Analytics service to track that the customer purchased this item.

Transfer order from a failed mobile device to the store's mobile device

This flow shows how a transaction can be transferred from one mobile device to another. This can occur if the original mobile device had some type of pending failure (for example, low battery warning). In order for this scenario to work, the Loyalty ID must be the same on both mobile devices.

Table 36. Transfer Order from a failed mobile device to the store's mobile device

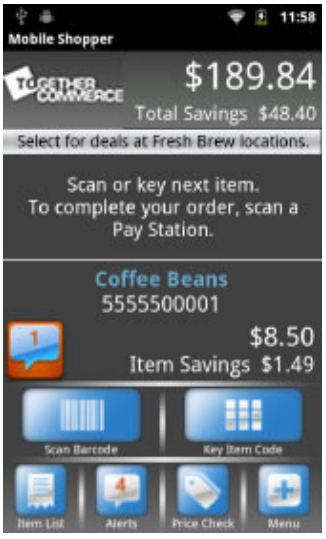
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 108. Transfer order from a failed mobile device to the store's mobile device (1 of 4)*	Customer #1 has been running the application and has various items and notifications as a part of their transaction.	Assume at this point that something happens to the customer's mobile device (for example, low battery warning).

Table 36. Transfer Order from a failed mobile device to the store's mobile device (continued)

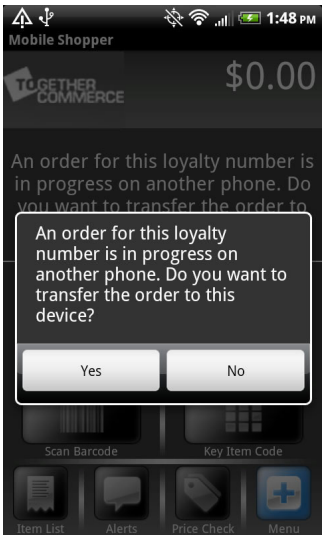
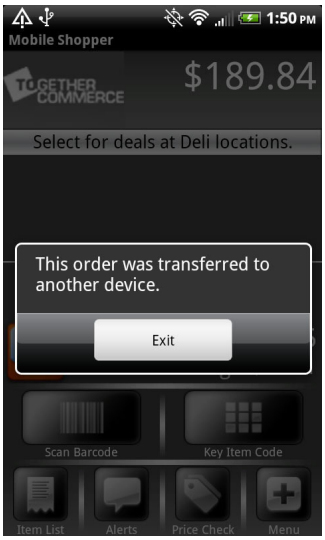
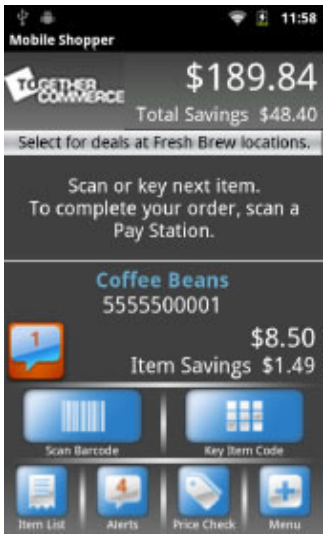
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 109. Transfer order from a failed mobile device to the store's mobile device (2 of 4)*	The customer's family member or one of the store personnel who has a mobile device with the Mobile POS application on, starts the application on their mobile device with the same loyalty number as the original device.	If the customer enters **No**, the application ends.
 *Figure 110. Transfer order from a failed mobile device to the store's mobile device (3 of 4)*	If Customer #1's mobile device is in a state that the screen can be updated, the system notifies the customer that their order has been transferred.	When the customer presses **OK**, the application ends.

Table 36. Transfer Order from a failed mobile device to the store's mobile device (continued)

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 111. Transfer order from a failed mobile device to the store's mobile device (4 of 4)*	After the customer presses the **Yes** button on the mobile device that the new order was started, the entire transaction (that is, all items and alerts) is transferred to this new mobile device.	The customer can continue their shopping as normal.

Mobile device temporarily loses connectivity while shopping

This flow shows how the Mobile Shopper device handles a temporary loss of connectivity to the Mobile Engine. This might occur if there are areas within the store that the wireless network signal does not reach. When the Mobile Shopper application detects a loss of connectivity, it only notifies the customer if necessary. If the customer is not actively using the application when the loss of connectivity occurs, the application might be able to restore connectivity before the customer attempts the next action (for example, adding an item to the order). However, if the loss of connectivity occurs in the middle of an action, the shopper will immediately be notified of the connectivity loss and be provided instructions for operating the application while offline.

Table 37. Mobile device temporarily loses connectivity while shopping

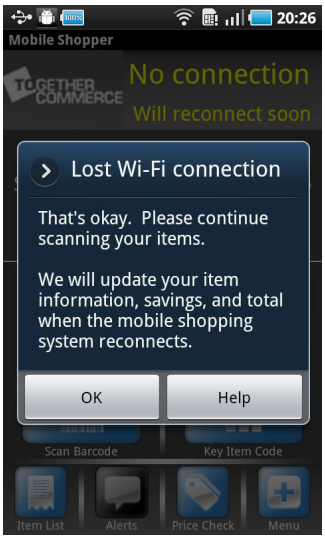
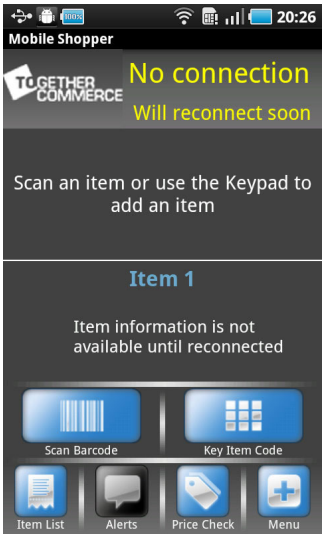
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 112. Mobile device temporarily loses connectivity while shopping (1 of 5)*	A loss of connectivity is detected in the middle of a customer action (for example, adding an item, performing a price check, or removing an item).	The customer is notified of the loss of connectivity. The customer can press **HELP** to get a detailed explanation about operating while offline or press **OK** to resume shopping.
 *Figure 113. Mobile device temporarily loses connectivity while shopping (2 of 5)*	When the customer presses **OK** on the previous screen, they are taken back to this screen prompting them to scan or key in an item code. If the customer scans or keys an item code, the field that normally displays the price will contain the text, "Item information is not available while offline."	Since neither the item description or pricing information is available while offline to the Mobile Engine, no detailed item information can be displayed.

Table 37. Mobile device temporarily loses connectivity while shopping (continued)

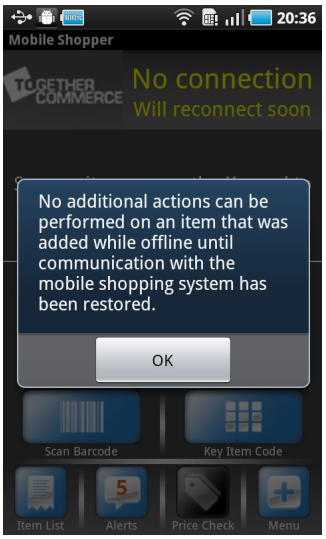
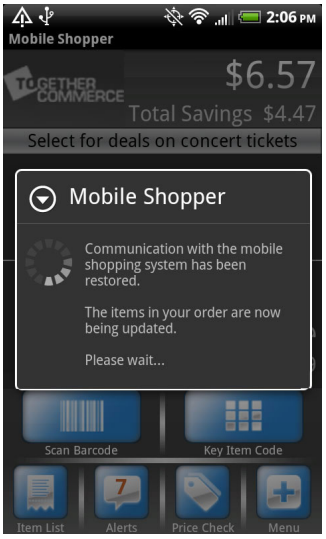
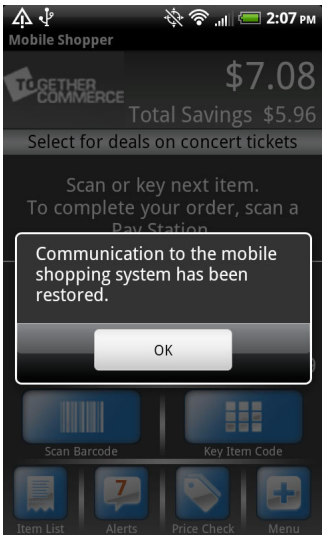
Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 114. Mobile device temporarily loses connectivity while shopping (3 of 5)*	If the customer presses (clicks) an item that was added while offline/online, normally a menu will be displayed with various actions that can be performed on that item (such as, displaying the item details or removing the item). If the customer presses an item that was entered while offline, they will get a screen informing them that no additional actions can be performed on the item until communication with the Mobile Engine is restored.	When connectivity is restored, the item will be updated and at that point the customer can display the item details or remove the item.
 *Figure 115. Mobile device temporarily loses connectivity while shopping (4 of 5)*	When connectivity is restored, the customer is temporarily blocked from adding new items to their order until items that were entered while offline are updated.	This process is typically completed in just a few seconds.

Table 37. Mobile device temporarily loses connectivity while shopping (continued)

Mobile Device Display	Customer Steps	Notes/Message Flow
 *Figure 116. Mobile device temporarily loses connectivity while shopping (5 of 5)*	After all items in the order have been updated, the customer is notified that communication to the mobile shopping system has been restored. When the customer clicks **OK**, they can resume shopping.	In addition to the items in the order being updated, the transaction total and savings are also updated. The "No Connection" message is removed and the transaction totals and savings are displayed in the upper right-hand portion of the screen as a visual indicator that the customer is now back online.

The Shopper "walks away" in the middle of a transaction

A transaction is started if a shopper adds at least one item using the Mobile Shopper application. If the shopper walks away without completing the transaction, the transaction will be cancelled after a set amount of time. The default time is 40 minutes, but is specific to each implementation.

Displaying the retailer's terms and conditions on your mobile device

This flow shows how the mobile device can display a retailer's terms and conditions (T&Cs), privacy policy, or any other information that needs to be displayed at startup using the Mobile Shopper application. At a high level, the following steps describe the process for displaying this information:

1. The retailer creates HTML formatted text with the information they want to display when the Mobile Shopper application is first started. Multiple translations of this HTML can be created so the information is shown in the language the user has configured on the mobile device. The HTML can contain links to websites if desired.
2. The retailer configures the Mobile Engine to send the HTML formatted information to the mobile device. The retailer can choose to have the information displayed on the mobile device:
   - Just once
   - When the mobile device application is started
   - When the information is updated

   The retailer assigns a "version" to the HTML file they created and the version information is used to trigger the mobile device application to re-display the information if and when it is updated, if the retailer chooses.
3. When the Mobile Shopper is started, it connects with the Mobile Engine and the Mobile Engine decides whether the HTML needs to be sent to the mobile device based on the configuration properties the retailer has defined. If the Mobile

Engine sends the HTML to the mobile device and the user presses the **Yes** button, the phone application stores the version of information you have accepted. If the retailer has configured that the information should be re-displayed whenever it changes, the version field is used to detect when the information should be re-displayed to you.

The retailer is responsible for creating HTML formatted text that contains the information they want displayed on the mobile device. The HTML formatted text can include links to websites.

Figure 117 includes two screen shots that show how the retailer can format the HTML to display the required information.

- Figure 117 shows how the information can be formatted so the shopper can click on a link to a website to read the detailed information. When the shopper clicks on the link, a Web browser is launched displaying the website.
- Figure 118 shows how the detailed information can be displayed directly to the shopper in a scrollable window. This mode must be used if the WiFi used for the mobile shopping application does not have internet connectivity.

In both cases, a **Yes** and **No** button displays at the bottom of the screen.

Table 38. Sample screen shots shows T&Cs with links to websites and simple text

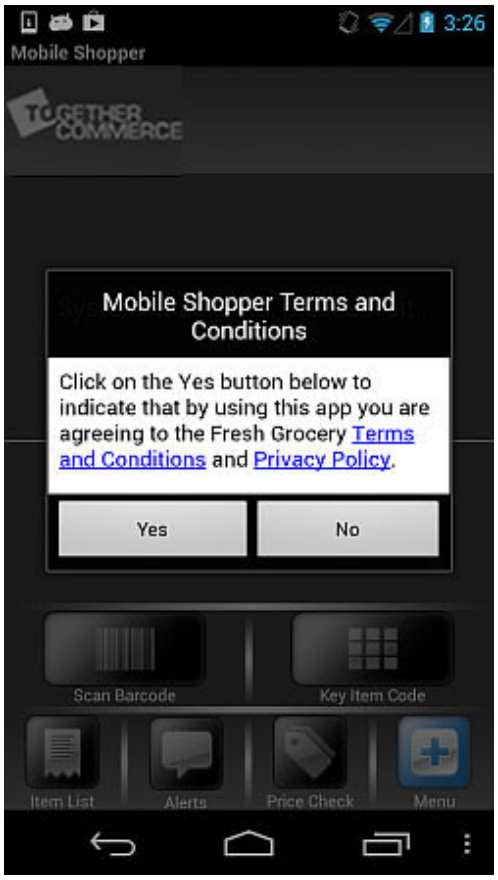


Figure 117. Sample screen shots showing T&Cs with links to websites and simple text (1 of 2)

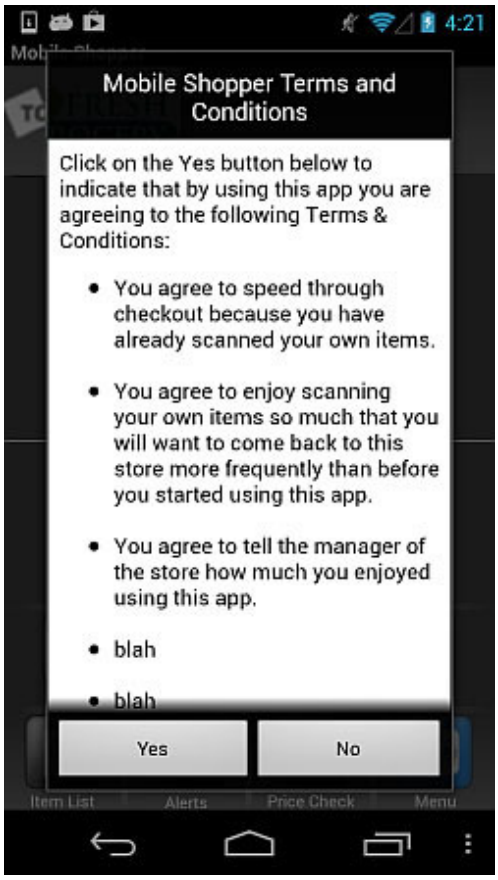

4:21
Mobile Shopper Terms and Conditions
Click on the Yes button below to indicate that by using this app you are agreeing to the following Terms & Conditions:
You agree to speed through checkout because you have already scanned your own items.
You agree to enjoy scanning your own items so much that you will want to come back to this store more frequently than before you started using this app.
You agree to tell the manager of the store how much you enjoyed using this app.
blah
blah
Yes
No
Item List
Alerts
Price Check
Menu

Figure 118. Sample screen shots showing T&Cs with links to websites and simple text (2 of 2)

The retailer has complete control of what information is displayed and how it is displayed (within the limits of HTML). The only restriction is that the HTML file cannot have links to other HTML files. The HTML file the retailer supplies must be written so that you will be prompted to click on the **Yes** button to accept the terms, and click **No** to decline the terms. The title displayed in the window with the **Yes** and **No** buttons is the title in the HTML file, so the retailer has control over what is displayed in the window title bar.

For example, the HTML file used to create Figure 117 on page 123 is shown in Figure 119, and the HTML file used to create Figure 118 on page 123 is shown in Figure 120. How the information is displayed is dependent on the web viewer used for each mobile device platform, so it is the retailer's responsibility to test using both the Android and iOS shopping applications to ensure the information they have provided in the HTML file is formatted correctly on each mobile device platform.

```
<html>
<head>
<style>body {background-color: white; color: black;font-family: Arial sans-serif;
  font-size: 12pt;} ul.touchable li {padding-top:8px; padding-bottom:8px;}
</style>
<title>Mobile Shopper Terms &amp; Conditions</title>
</head>
<body>
<p>Click on the Yes button below to indicate that by using this app you are
agreeing to the Toshiba <a href="http://www.retailer.com/terms">Terms &amp;
Conditions</a> and <a href="http://www.retailer.com/privacy">Privacy Policy</a>.
</body>
</html>
```

Figure 119. Sample HTML for displaying information with web links (1 of 2)

```
<html>
<head>
<style>body {background-color: white; color: black;font-family: Arial sans-serif;
  font-size: 12pt;} ul.touchable li {padding-top:8px; padding-bottom:8px;}
</style>
<title>Mobile Shopper Terms &amp; Conditions</title>
</head><body>
<p>Click on the Yes button below to indicate that by using this app you are
agreeing to the following Terms &amp; Conditions:
 <ul><li>You agree to speed through checkout because you have already
scanned your own items.</li> <BR/>
 <li>You agree to enjoy scanning your own items so much that you will want to come
back to this store more frequently  than before you started using this app.</li>
  <BR/>
  <li>You agree to tell the manager of the store how much you enjoyed using this
app.</li>  <BR/>
  <li>blah</li>  <BR/>
  <li>blah</li>
</ul>
</body>
</html>
```

Figure 120. Sample HTML for displaying information without web links (2 of 2)

The retailer configures the Mobile Engine to send the terms and conditions information to the mobile device by adding properties to the `mobileserver.properties` and `mobiletext.properties` files or one of the extension files. See "Property extension mechanism" on page 201 for more information about using property extension files.

Table 39 describes the properties that need to be added to the mobileserver.properties file or one of its extensions files (that is, siusermobileserver.properties).

Table 39. Properties added to the mobileserver.properties file

Property	Description
terms.version	The version of the termsAndConditions HTML file in the mobiletext.properties file (or one of its extension files).
terms.policy	Set to one of the following numeric values: 0 – Disable display of termsAndConditions HTML default. 1 – Display termsAndConditions HTML once for the life of the application. 2 – Display termsAndConditions HTML whenever the terms.version on the mobile device does not match the terms.version on the Mobile Engine (that is, display each time the terms are updated). It is the retailer's responsibility to update the **terms.version** each time they change the **termsAndConditions** HTML. 3 – Display **termsAndConditions** whenever the shopper launches the mobile device application. If the termsAndConditions HTML is displayed, the user must press the **Yes** button before they can proceed with using the application. **Note:** Information indicating what terms.version has been accepted by the shopper is stored on the mobile device. If the shopper clears the data associated with the mobile shopper application, they will have to accept the terms again the next time they launch the application so that the application can restore the terms.version information.

The HTML that the retailer wants to display must be added to the mobiletext.properties file or one of its extensions files (for example, siusermobiletext.properties). The HTML **must** include the ***<html>*** tag with ***<html>*** all in lowercase. The mobile device application determines the text to be displayed is HTML by searching for the **<html>** tag with "html" all in lowercase.

The property to use when defining the HTML is:

```
termsAndConditions=
```

Since the HTML file will usually consist of multiple lines of text, the backslash ('\') character must be used at the end of each line as a continuation character. An example of how to set the termsAndConditions property with multiply lines of HTML code is shown below:

```
termsAndConditions=<html><head> \
               <style>title {text-align:center;} \
               body {background-color: white;color: black;font-
```

```
family: \
                Arial sans-serif;font-size: 12pt;} \
                ul.touchable li {padding-top:8px;padding-
bottom:8px;}</style> \
                <title>Mobile Shopper Terms and Conditions</title> \
                </head><body><p>Click on the Yes button below to
indicate \
                that by using this app you are agreeing to the Toshiba \
                <a href+"http://www.retailer.com/terms">Terms \
                and Conditions</a> \
                and <a
href="http://www.retailer.com/privacy/">Privacy \
                Policy</a>,</body></html>
```

If the retailer wants to provide the information in multiple languages, they must include additional files for each language. The naming convention for these files is:

[filename] [underscore] [two-letter ISO-639 language code] [.properties]

For example, if the `siusermobiletext.properties` file is used for the English text, the Spanish text would be stored in a file named `siusermobiletext_es.properties`.

A full list of the ISO-639 two-letter language codes are available at http://www.loc.gov/standards/iso639-2/php/English_list.php.

When the mobile phone application is started, it connects to the Mobile Engine and exchanges initialization messages. During this exchange of messages, the mobile phone application will send the Mobile Engine the `terms.version` stored on the mobile device (if any). When the Mobile Engine receives this information, it will determine (based on the `terms.policy` configuration parameter) whether the `termsAndConditions` text needs to be sent to the mobile device. If the HTML is sent to the mobile device, it will be displayed as shown in Figure 5 on page 12. When the shopper presses either the **Yes** or **No** button, that information will be sent back to the Mobile Engine and if only **Yes** is pressed, the Mobile Engine will proceed with initializing so that the shopper can use the application.

The acceptance of the terms will occur before the user is prompted to enter their loyalty number. In some instances, the user will accept the terms and after their loyalty information is processed, they might be informed that they are not allowed to use the application.

When the mobile phone application receives information from the Mobile Engine that the user is allowed to use the application, the mobile device will store `terms.version` on the mobile device so that it can be sent to the Mobile Engine the next time the application is started.

Self-Service Scale

The self-service scale (SSScale) is a "weights and measures" certified Store Integrator GUI Front-End Register User Interface that has been modified from an Operator Store Integrator GUI display to a customer facing display. This guides the shopper through the process of purchasing and weighing produce for either mobile shoppers or non-mobile shoppers.

Highlights: SSScale

The highlights of the self-service scale (SSScale) include the following:

- Runs on a real 4690 register:

  - Using only the terminal, the touch display, and scale. No other hardware is needed unless label printing is desired.
  - Using "Training mode" in ACE to prevent anything from being placed in TLOGS, using transaction numbers.
  - Currently prints labels on either a Toshiba B-EV4 or Zebra LP 2824 Plus printer connected through a serial port to the 4690 (but can use any serial connected label printer).
  - No separate item file maintenance is required.
  - Consistent loyalty pricing with front-end (that is, no duplicate processing).
  - No hard drive maintenance.
  - No CSS sessions required.
- Displays and processes both regular price and loyalty price (including linked coupons, excluding targeted coupons) since it is just an extension of the Mobile Shopper POS system.
- Has a "walk away" timer that resets the terminal after a configurable amount of time (currently set to 2 minutes).
  - Navigating through the screens prevents the timer from firing and logging off the system.
- Is Weights and Measures certified.

Self-Service Scale screen flows

The following are self-service scale (SSScale) screen flows:

Initial Screen: The self-service scale (SSScale) can run in two different modes. One mode is where the Mobile Shopper is active and the other mode is when it is inactive. Even when the Mobile Shopper system is active, the SSScale allows labels to be printed since not all shoppers will have mobile devices to do their shopping. See “Print barcodes and check prices” on page 133 for details on using the self-service scale to print produce labels and check prices.

When the Mobile Shopper system is inactive, the initial screen Figure 121 on page 128 is displayed.

Figure 121. Initial Self-Service Scale screen with the Mobile Shopper inactive

When the Mobile Shopper system is active, the initial screen shown in Figure 122 is displayed, reflecting that both mobile and non-mobile consumers can use the self-service scale. The **Start** button on the left will be used to initiate the Barcode Printing and Price Check functions (see “Print barcodes and check prices” on page 133), while the **Start** button and/or the barcode on the right is used by the Mobile Shopper POS shoppers to connect their mobile device with this terminal. See “Pressing "Start" from the "Mobile Scan"” or “Scanning Self-Service Scale after entering weight required items” on page 129 to see how to use the system as a Mobile Shopper customer.

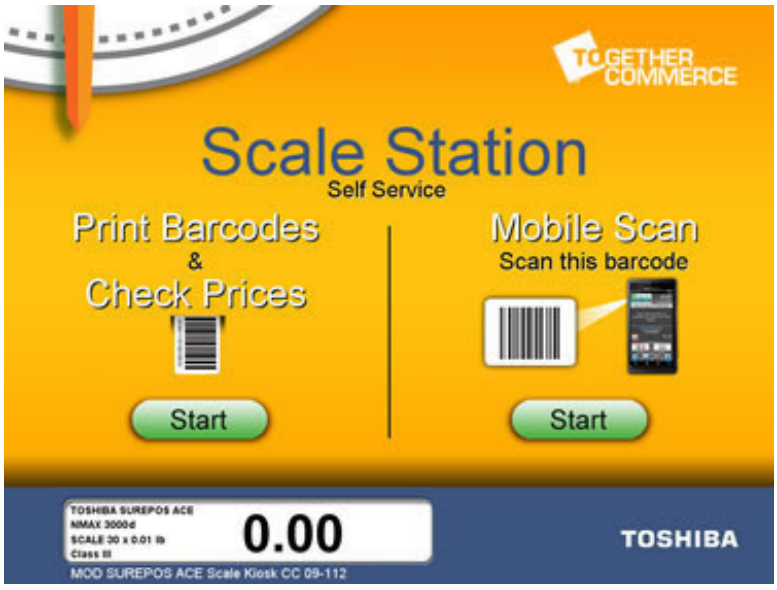


Figure 122. Initial Self-Service Scale screen with the Mobile Shopper active

Pressing "Start" from the "Mobile Scan": If the shopper cannot get the barcode on the initial screen to scan, they can press the **Start** button under the "Mobile Scan" header. The screen shown in Figure 123 on page 129 is displayed that

includes a larger barcode to scan. See “Print barcodes and check prices” on page 133 for details on using the self-service scale to print produce labels and check prices.

When the Mobile Shopper system is inactive, the initial screen (see Figure 123) is displayed, which includes a larger barcode to scan.

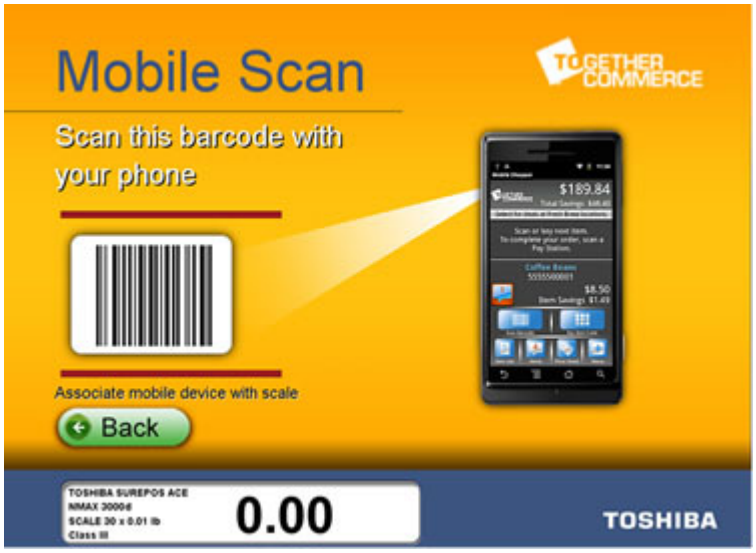


Figure 123. Self-Service Scale Mobile Scan Starting screen

Scanning Self-Service Scale after entering weight required items: If the shopper scans the barcode for this self-service scale *and* has already scanned (or keyed) some produce items with their mobile device, Figure 124 on page 130 is displayed showing all weight required items the customer has entered. From this screen, the customer can select one of the items from the list, or select **Search images** to search for their item. (See “Self-Service Scale with no phone items” on page 133 for the screen that is displayed if the shopper scans the barcode for this self-service scale when there are no weight required items previously entered on the mobile device.)

Figure 124. Self-Service Scale showing items entered on the mobile device

Weight required item entered: After a customer enters an item that requires weight to be entered, this screen displays information specific to the item and will prompt for the weight, as shown in Figure 125.

Figure 125. Self-Service Scale Weight Entry screen

Adding an item to the mobile device: After the shopper places the bananas on the scale, a screen is displayed. Figure 126 on page 131 to the left shows an item with loyalty pricing, and the screen on the right (see Figure 127 on page 131) shows an item without loyalty pricing. If the shopper presses **No**, they are returned to the screen that shows the produce items that have been scanned. If they select **Yes**, the item is added to the mobile device transaction.

Table 40. Self-Service Scale Item Entry screens

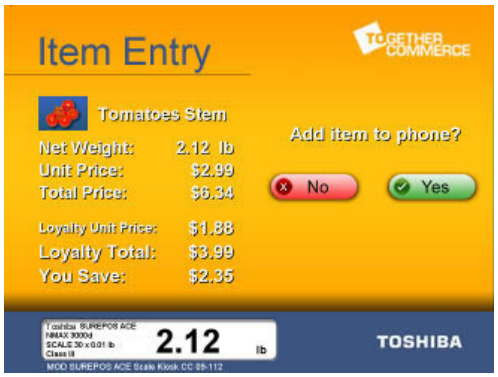


Figure 126. Self-Service Scale Item Entry screen (1 of 2)

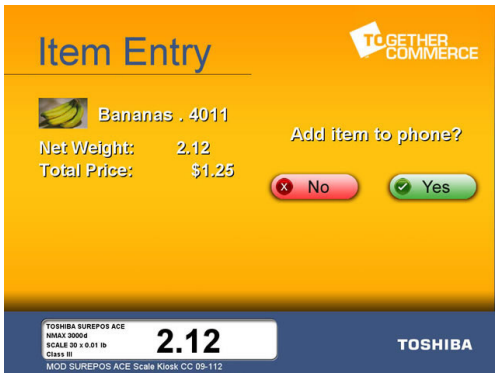


Figure 127. Self-Service Scale Item Entry screen (2 of 2)

After adding an item to the mobile device: If the shopper presses **Yes** to add the item to their mobile order, a screen is displayed instructing the shopper to remove the item and place it in their cart (see Figure 128).

Figure 128. Self-Service Scale Item Entry Completion screen

Search images: If a shopper presses the **Search Images** button, a screen is displayed (see Figure 129 on page 132) to allow the shopper to search for an item, and then select that item by touching the button. Press the **Back to Item Entry** button to return to the item entry screen.

Figure 129. Self-Service Scale Search screen

After removing item from the scale and placing it in shopping cart: If there are still produce items remaining in the Phone Item List, they will be displayed, as shown in Figure 130. Processing should continue until all items have been weighed. If there are no additional items in the Phone Item List, the screen shown in Figure 132 on page 133 is displayed (see “Self-Service Scale with no phone items” on page 133).

Figure 130. Items remaining on the Phone Item List screen

Removing an item from the Phone Item List: If the shopper wants to remove an item from the phone, select it just as if they are adding it to the transaction, and then select the **Delete** button (see Figure 131 on page 133). After deleting the item,

the self-service scale would either return to the Phone Item List or it would go to the screen. See Figure 132 and “Self-Service Scale with no phone items.”

Figure 131. Self-Service Scale Item Deletion screen

Self-Service Scale with no phone items: If all phone items have been processed **or** the shopper has not scanned any produce, but scanned the barcode on the self-service scale (SSScale), the screen would be displayed (see Figure 132). From this screen, the shopper can scan an item, key an item number, or select **Search by Picture** to enter items as described in “Search images” on page 131.

Figure 132. Self-Service Scale with no phone items

Print barcodes and check prices: Printing labels with pricing information for produce that is not to be purchased using the Mobile Shopper solution is another

capability of the self-service scale (SSScale). See “Initial Screen” on page 127 for information on how to initiate this process.

By using the feature of the SSScale, you can speed up checkout by having a scanned label attached to produce, thus reducing the time for the cashier to enter this information for weight or quantity required produce.

When the **Start** button for Printing Barcodes or Checking Prices is pressed on the initial screen, the shopper will see the screen in Figure 133. The shopper can either scan a barcode (UPC or GS1), key in a product look-up (PLU) number, or select **Search Images** to search for their item.

Figure 133. Self-Service Scale Item Entry screen

If the item entered is a weight-required item, see “Weight required item entered” on page 130. If the item entered is a quantity required item, see “Quantity required item entered.”

Quantity required item entered: If a customer enters an item that requires a quantity to be entered, see “Initial Screen” on page 127 on how to initiate this process.

By using this feature of the self-service scale you should be able to speed up checkout by having a scanned label attached to produce, thus reducing the time that the cashier needs to enter this information for weight or quantity required produce.

When the **Start** button for Printing Barcodes or Checking Prices is pressed on the initial screen, the Quantity Entry screen is displayed (see Figure 134 on page 135). Information specific to the item is shown on this screen and the user is prompted for the quantity.

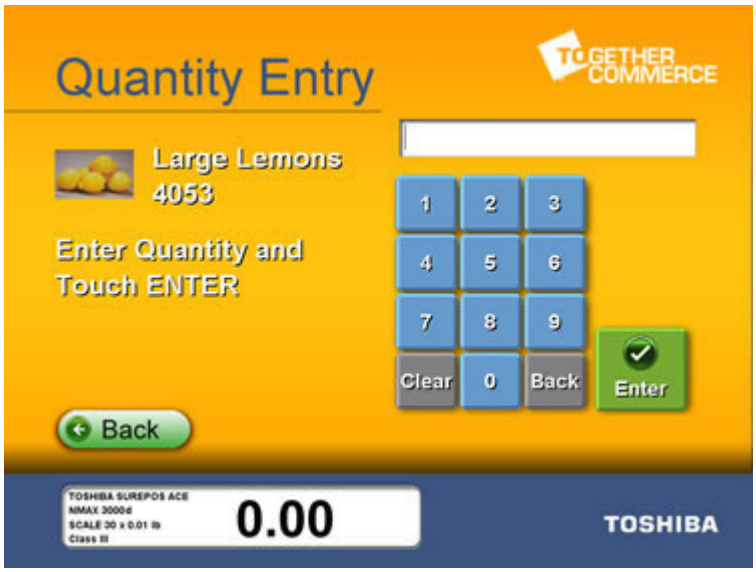


Figure 134. Self-Service Scale Quantity Entry screen

Printing a label: After the shopper places an item on the scale, the Weight Entry screen (see Figure 135) is displayed (both an item with loyalty and without loyalty are available, but only the non-loyalty screen is shown here). If the shopper presses **No**, they are returned to the previous screen. If they select **Yes**, the item label is printed so the customer can place the label on the produce.

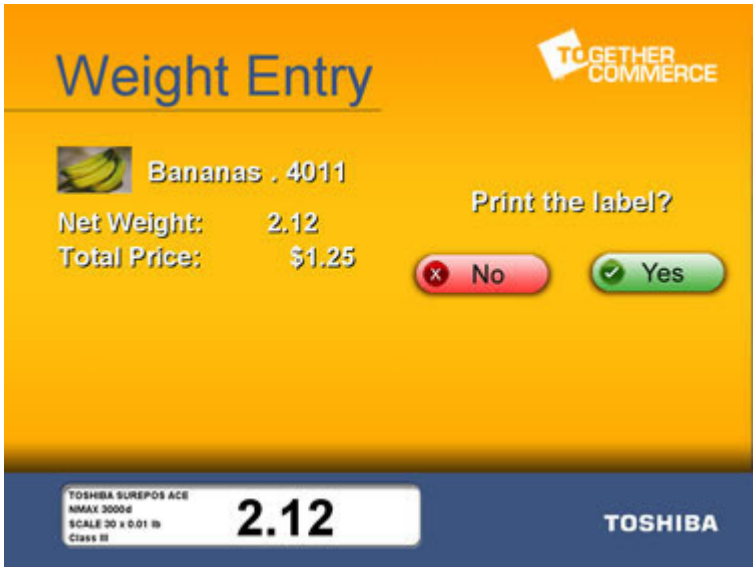


Figure 135. Self-Service Scale Label Printing screen

Sample produce labels: Figure 136 on page 136 shows a sample barcoded produce label for a weight required item, and Figure 137 on page 136 shows a label for a quantity required item. ACE needs to be modified to be able to scan these unique Code 128 Barcodes that can include the GS1 item number and the weight and quantity of the items (see “ACE options to read Self-Service Scale labels” on page 136).

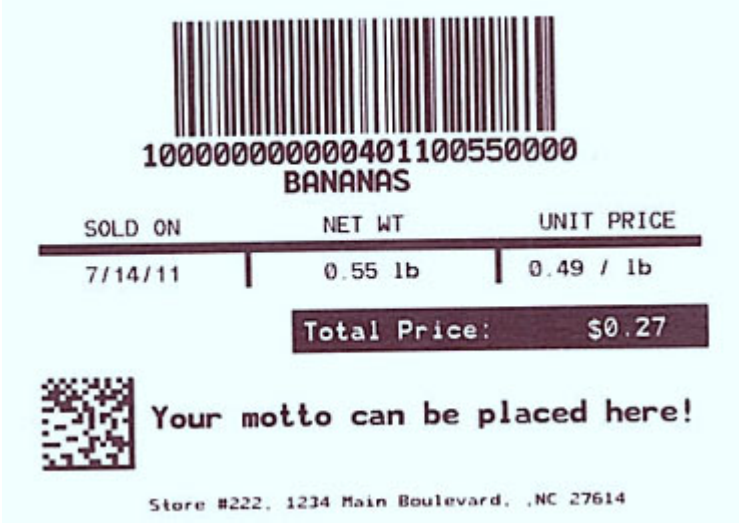


Figure 136. Weight Barcode with No loyalty Pricing

Figure 137. Quantity Barcode with Loyalty Pricing

ACE options to read Self-Service Scale labels: The following figures show the options required for ACE to read the self-service scale barcodes (see Table 5 on page 50 and Table 6 on page 50).

Self-Service Pay Station

The self-service pay station (SSPS) is an extension to the TGCS Self Checkout Solution (CHEC) that has been optimized for payments. The Mobile Shopper POS transactions can be retrieved on the SSPS and loss prevention is handled by managing the TGCS Mobile Exception Framework issues that might have occurred during the Mobile Shopper POS transaction. It has also been modified to maintain the Mobile Shopper POS look and feel consistent with the self-service scale described in “Self-Service Scale” on page 126.

Highlights: Self-Service Pay Station

The highlights of the TGCS self-service pay station (SSPS) include the following:

- An extension of TGCS Self Checkout (CHEC):
  - Providing full self checkout functionality and infrastructure.
- Optimizes transaction payment and problem resolution by using the TGCS Mobile Exception Framework.
- Prevents customers from completing transactions until all exceptions have been resolved.
- Logs all shopper assistant (SA) exception activity to the TLOG to ensure proper resolution of exceptions.

Self-Service Pay Station screen flows

Using the Initial screen

The self-service pay station (SSPS) allows connectivity with the mobile device to facilitate transaction payments. The initial screen, see Figure 138, provides a barcode similar to the self-service scale to allow communication between the two components. If the Mobile Engine is not running, the barcode on this screen will not be displayed.

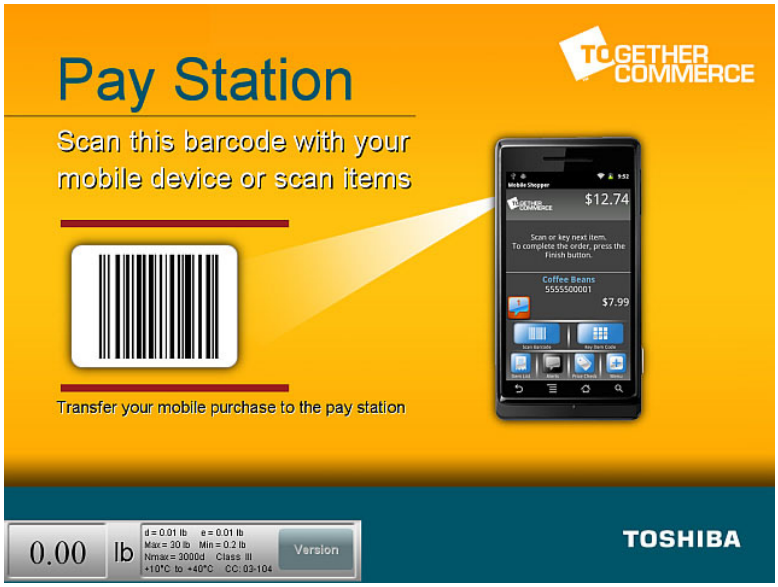


Figure 138. Self-Service Pay Station initial screen

Completing a mobile transaction

After the order is retrieved, the customer is prompted to scan any coupons, enter any additional items, or select **Finish and Pay**. If any exceptions occurred during the mobile transaction, the lane light will be flashing to notify a shopper assistant (SA) that this customer needs assistance prior to completing their transaction.

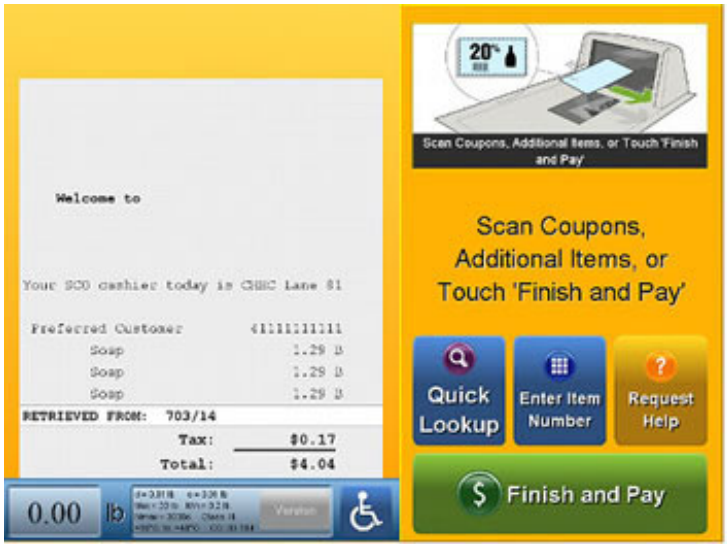


Figure 139. Mobile Transaction Completion screen

Paying for a mobile transaction

If *no* exceptions occurred during the mobile shopping experience and the customer selects **Finish and Pay** (or exceptions occurred but were handled by a shopper assistant), the customer can select their tender, pay, receive their receipt, and their checkout is completed.

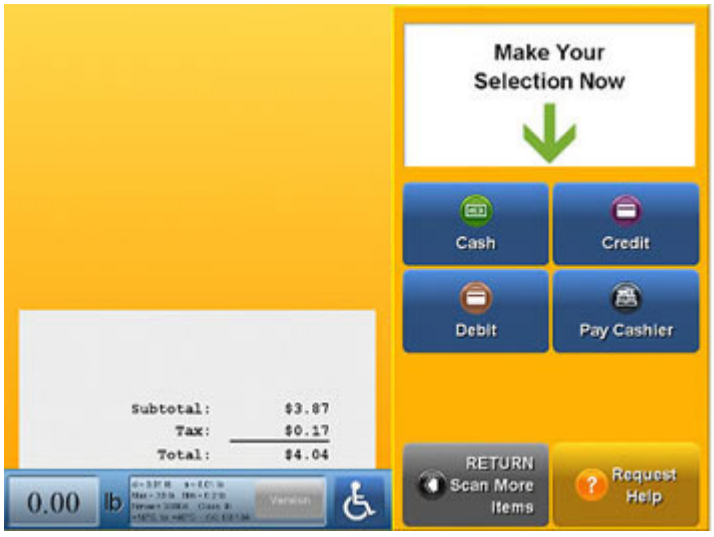


Figure 140. Mobile Transaction Payment screen

Exceptions on the Self-Service Pay Station

If (and only **if**) there were exceptions in the order, the transaction cannot be completed until a shopper assistant handles all exceptions. Once the exceptions have been entered, the shopper assistant leaves and the customer can continue payment options.

Exceptions can be any number of things that occurred during the mobile shopping experience, such as, age-restricted items purchased, weight required items purchased but not weighed, or price required items purchased. The buttons that are displayed on the right side of the screen are context sensitive to the specific exception, and are intended to help resolve the exception. If an audit is required, it is handled by this same exception process, but will have screens specific to the audit processing. There is a similar exception processing component of the Store Integrator GUI. See “Store Integrator GUI” for details.

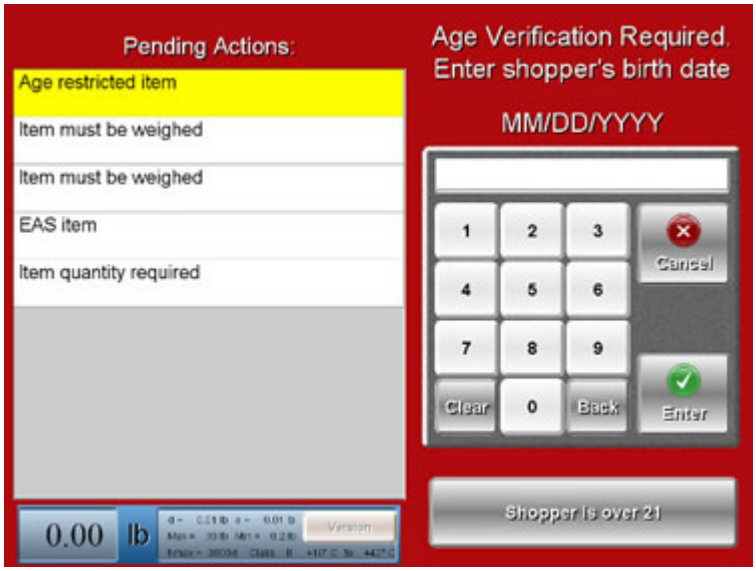


Figure 141. Self-Service Pay Station Exception Processing screen

Store Integrator GUI

The Store Integrator GUI has been modified to allow Mobile Shopper POS transactions to be retrieved on the operator attended front-end lanes of your store, and to address loss prevention by managing the Exception Framework issues that might have occurred during the Mobile Shopper POS transaction. If a Mobile Shopper POS transaction has been suspended and cannot be retrieved by scanning the barcode on the customer's display, the cashier can still retrieve the transaction using the normal "Retrieve Transaction" capability on the Store Integrator GUI register as a backup.

Highlights

The highlights of the Store Integrator GUI enhancements for the Mobile Shopper POS include the following:

- Integrates into your existing Store Integrator GUI front-end configuration.
- Uses the Store Integrator GUI customer display to display the barcode used to retrieve the mobile transaction to a specific terminal.

- Uses the TGCS Mobile Exception Framework to prevent any mobile transaction that has exceptions from being completed until the cashier resolves the issues.
- Logs all cashier exception activity to the TLOG to ensure proper resolution of exceptions.

Store Integrator GUI screen flows

Using the initial screen for the Store Integrator GUI

The self-service pay station (SSPS) allows connectivity with the mobile device to facilitate transaction payments. See Figure 142 for the initial screen that displays when the Mobile Engine is not connected and see Figure 143 on page 141 for the initial screen when the Mobile Engine is connected.

Figure 142. Store Integrator GUI when the Mobile Engine is disconnected

Figure 143. Store Integrator GUI when the Mobile Engine connected

Retrieving a Mobile Shopper POS transaction

In order to retrieve a Mobile Shopper POS transaction, the Store Integrator GUI must be in a signed state and cannot be in an active transaction (see Figure 143). When in this state, the customer can scan the barcode showing on the Store Integrator GUI customer display that is similar to the process for both the self-service scale and the self-service pay station (SSPS). See Figure 144 on page 142 for an example of the customer screen that could be implemented.

When this barcode is scanned, the mobile device transaction is suspended and the transaction is transferred to this terminal for payment. If there are no exceptions in the mobile device transaction, a screen similar to the one shown in Figure 145 on page 142 will be shown and the cashier can select **Total** and tender out the transaction.

Figure 144. Customer Store Integrator GUI screen for Mobile Shopper POS

Figure 145. Store Integrator GUI Retrieval with no exceptions

Retrieving a Mobile Shopper POS transaction with exceptions

If a Mobile Shopper POS transaction has been retrieved and there are exceptions in the order, a screen similar to the one shown in Figure 146 on page 143 is displayed. The cashier cannot select the **Total** button since it will not be visible until all exceptions have been processed. When the **Item Exceptions** button is pressed, all exceptions in the transaction will be displayed, see Figure 147 on page 143. The buttons shown below the selected exception are context-sensitive to the specific exception. Any action taken by the cashier might be optionally logged to the TLOG. During the handling of each exception, if there is additional information needed for the exception (like a birth date, a quantity, or a weight), the cashier will be prompted for this additional information. In addition, the cashier can select the **Item Entry**

button to return to normal Store Integrator GUI processing, but must return to these exceptions and process them successfully before the transaction can be completed.

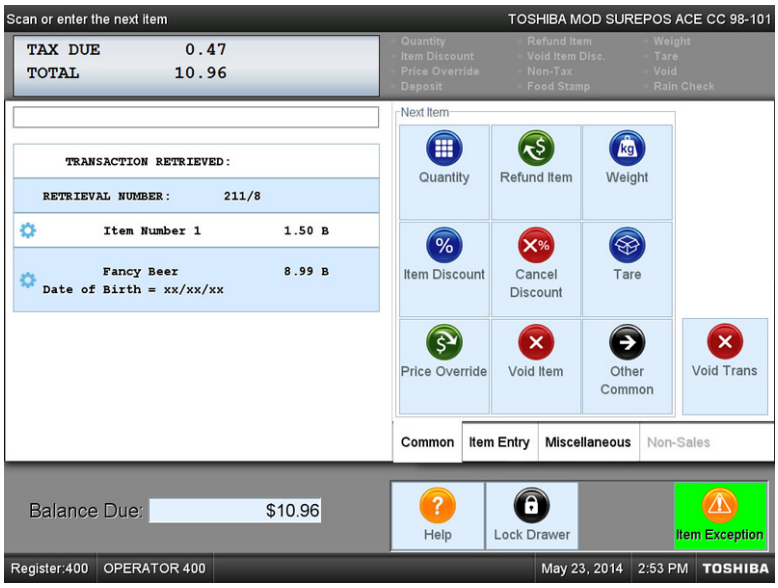


Figure 146. Store Integrator GUI Retrieval with exceptions

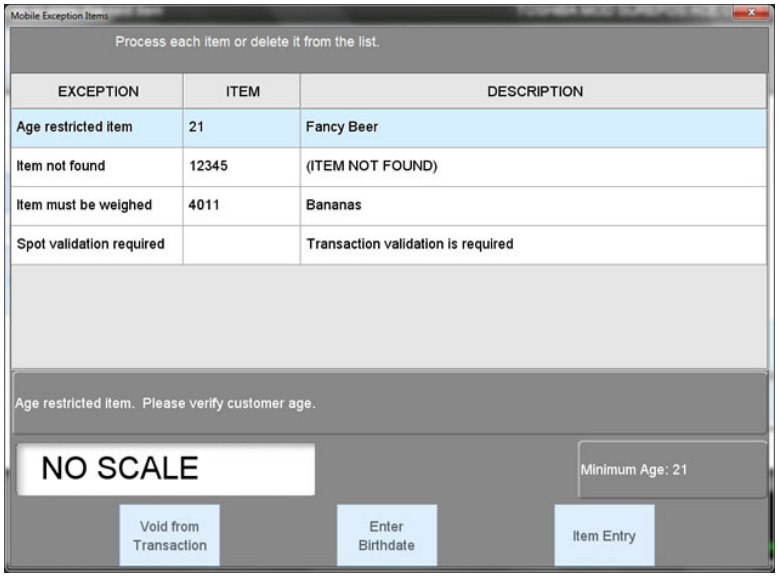


Figure 147. Item Exceptions Dialog

Audits

The auditing for the Mobile Shopper depends on information provided by the POS Integration Hub (PIH) to trigger an audit during checkout. The PIH interfaces with the retailer's process, which maintains the logic for determining when a shopper audit is to be conducted. For auditing purposes, a payment station can be either a self-service pay station (SSPS) or a Store Integrator GUI attended pay station (for example, a front-end lane).

Note: For this publication, auditing procedures will focus on the Store Integrator GUI lane, but the flow should be the same for a self-service pay station (only displayed slightly different). In order to support auditing, customer IDs must be present in transactions.

When a Mobile Shopper POS transaction is retrieved during checkout, a request for audit details is sent to the PIH. The POS Integration Hub responds to the "audit details request" message indicating whether the shopper is flagged for an audit. A "full audit" indicates the transaction is to be voided and the entire order re-scanned through the pay station. Alternately, a "spot audit" indicates only a limited number of items should be re-scanned and the scanning will occur using the pay station. In the case of a "spot audit", the number of items requiring re-scanning is defined in the application configuration, but can also be specified in the PIH response to the "audit details request" received from the retailer.

When an audit is indicated by the POS Integration Hub, the Mobile Shopper POS session generates an "audit required" exception. This exception is included with any other exceptions (for example, quantity required exceptions, weight required exceptions, or unexpected weight change exceptions) that occurred during the Mobile Shopper POS transaction. This exception is added so that it will be the last entry on the exceptions list when processed during checkout. All other exceptions must be handled prior to performing an audit.

Spot audits

When an audit exception is selected, there are two options available to the cashier:

- A Spot or Full Audit
- A Bypass Audit

Selecting the Spot or Full Audit option closes the GUI exceptions list (see Figure 148 on page 145). If a spot audit is required, the Transaction Audit window will display (see Figure 149 on page 145). This window can have two variations depending on the type of spot audit that is specified:

- A spot audit with recommended items
- A spot audit with no recommended items

The TLOG will be updated if the cashier bypasses an audit (whether it is a spot or full audit).

Note: For a spot audit without a required list, the top table will still be visible, but no items will be listed.

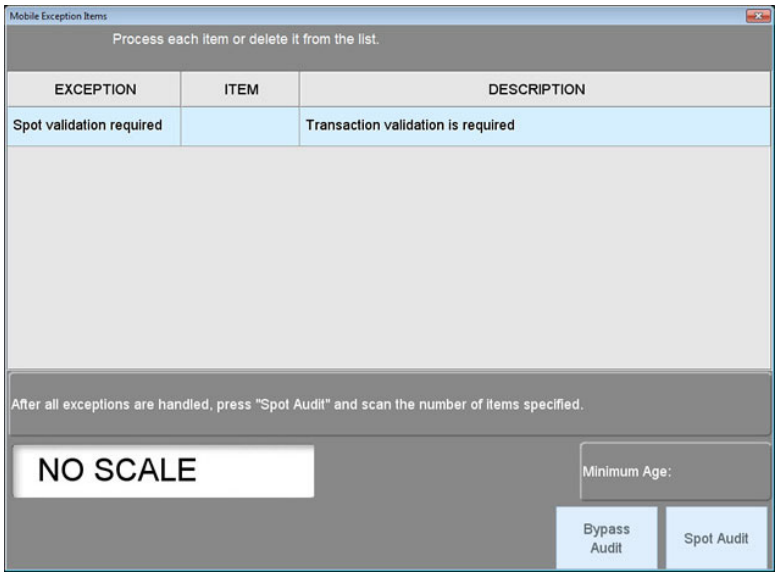


Figure 148. Spot Audit exception

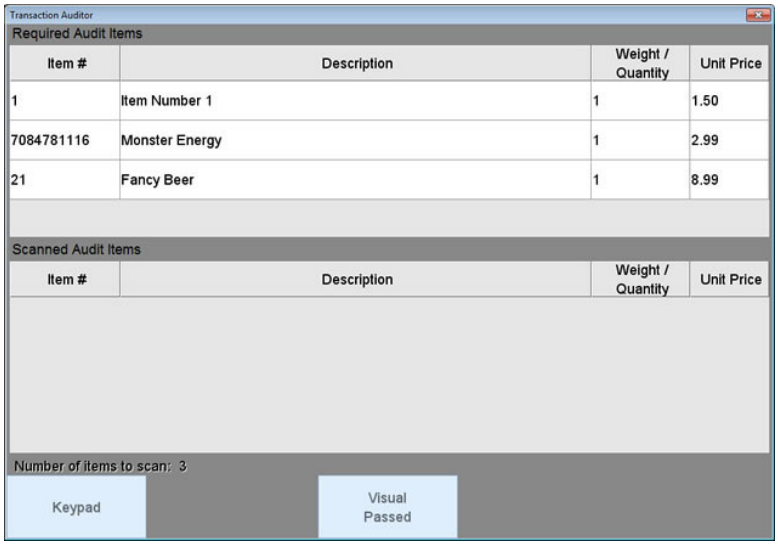


Figure 149. Spot Audit with required list

The Transaction Audit window displays the following two lists:

- The list of required items to be audited (see “Audit required list” on page 146 for details).
- The list of items scanned for audit (see “Audit items list” on page 146 for details).

The information on both lists are non-selectable and view-only. The Transaction Audit window also shows the number of remaining items required to be audited and gives the cashier the option to do a visual audit rather than a scanning audit. The **Visual Passed/Failed** buttons in the Transaction Audit window indicate whether there is an option to do a visual audit. See “Visual audit” on page 148 for more details.

The **Keypad** button allows the cashier to enter the item number for weight or quantity required items during the audit. When multiple quantities of an item are scanned during an audit, the Audit Keypad opens so the cashier can validate the quantity purchased. See “Audit keypad” for more details. A self-service scale barcode can be scanned as part of the audit and could launch the Weight Confirmation window or Keypad window depending on the item information. See “Audit weight confirmation dialog” for more details.

The Transaction Audit window remains displayed until either the required number of items have been successfully scanned or the cashier presses one of the visual audit buttons.

Audit required list

Items displayed in the list of required audit items will be defined by the retailer’s host system. The number of items displayed in this list, as well as the count of required items, defaults to a predetermined number that is set in the application's configuration properties (for example, the number 5). However, this number can also be determined by the retailer's host system and included in the audit results returned by the PIH. This list is not frequently used.

Audit items list

As items are scanned by the pay station for spot audits, the items are displayed in the Audit Items list. If the item scanned is an item in the transaction, the item information is displayed over a green background, and the count of remaining items to be audited is reduced by one. If the item scanned is not in the transaction, the item information is displayed over a red background alerting the cashier to the discrepancy, and the item is automatically added to the transaction. A discrepancy item scan does not reduce the count of required items to be audited.

If a certain number of discrepancy items are encountered, the entire transaction is voided and must be scanned manually by the cashier. This number defaults to a predetermined number that is set in the application's configuration properties (for example, the number 5). This number can also be determined by the retailer's host system and included in the audit results returned by the PIH.

Audit keypad

The **Keypad** button on the Spot Audit window opens the keypad window for entering the product look-up (PLU) for non-barcoded items during the audit. This window is also launched to validate the quantity on multiple quantity items. Processing a weight required item will launch the new Audit Weight Confirmation window. See “Audit weight confirmation dialog” for more details.

When the weight or quantity entry is completed, the results will be displayed on the Spot Audit window in the Audit Items List (see Figure 149 on page 145) with a green or red background. See the detailed description in “Audit items list.”

Audit weight confirmation dialog

This window provides instructions to the cashier to place the item on the scale for validation of the weight and requires pressing an **OK** button to complete the process. A configured tolerance will be considered for validation. Validation of the audit is handled within the Store Integrator GUI and the tolerance will default to 0.1 lbs. This tolerance is configured in the `mobileserver.properties` file or one of its extensions (see“Property extension mechanism” on page 201). When the weight entry is completed, the results will be displayed on the Spot Audit dialog in the Audited Items List (Figure 149 on page 145).

Mobile Transaction Monitor

The Mobile Transaction Monitor consumes events produced by the POS Integration Hub (PIH) during the course of a transaction's lifecycle. The Mobile Transaction Monitor evaluates the transaction at various stages and determines whether a spot audit should be required based on a set of configurable properties found in `mobileserver.properties`. Please see the properties defined below from `mobileserver.properties`:

- `audit.mobile.number.item.voids.allowed`, and
- Properties that begin with `audit.mobile.transaction.*` for detailed options that can be set for your environment.

Full audit

For a full audit, the entire Mobile Shopper POS transaction is voided and the items must be re-scanned by the cashier. A full audit exception will be indicated as follows:

Figure 150. Full Audit exception

When the **Full Audit** button is pressed, the following warning screen is displayed (see Figure 151). If the operator presses **Yes**, the entire transaction will be voided and must be re-entered by the cashier.

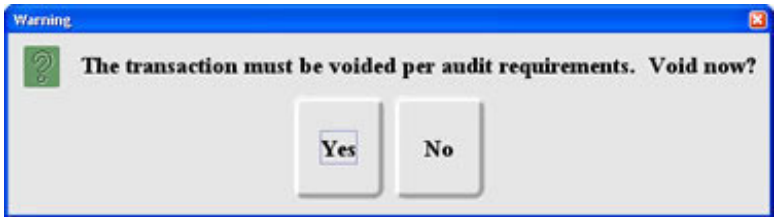


Figure 151. Full Audit Warning prompt

Visual audit

The option to perform a visual audit can be presented to the cashier depending on the size of the transaction (number of items, that is, 10 or less). The maximum number of items that will allow a visual audit defaults to a predetermined number set in the application configuration properties (see the `audit.num.items.allowed.for.visual.audit` property). However, this number can also be determined by the retailer's host system and included in the audit results returned by the POS Integration Hub (PIH).

The option to perform a visual audit is indicated by the display of the **Visual Passed** or **Visual Failed** buttons in the audit window. The **Visual Passed** button is initially displayed, while the **Visual Failed** button is only shown if there are exceptions noted while scanning items during the audit. Any items found by the

cashier during a visual audit that are not in the transaction should be scanned (as is done in the normal audit process). These items appear in the audited items list as failing items (see “Audit items list” on page 146) and cause the visibility of the "visual passed or failed" buttons to be swapped.

Audit details request

When the Mobile Shopper POS transaction is retrieved at the self-service pay station, the retailer's host system will be responsible for responding with the information shown in Table 41. An entry is only required if there is a valid value (that is, if the "TypeOfAudit" indicates "Full Audit Required", then there will not be an entry for `NumItemsToScan`).

Table 41. Required audit information from retailer's host system

Key	Values (Integer)
typeOfAudit	• 0 = No Audit Req • 1 = Spot Audit Req • 2 = Full Audit Req
numItemsToScan	The number of items required to be scanned during a spot audit.
numRequiredItems	The number of required items to display.
numFailedItemsAllowed	The number of audit exceptions to allow before requiring a “full audit”.
maxNumItemsForVisualAudit	The maximum number of items that are allowed to be “Visually Audited”.
requiredItems	A list of items to be found in the transaction.

Audit results

After an audit is complete and the transaction is final, the different results of the audit are listed Table 42.

Table 42. Audit results

Key	Values (Integer)
auditType	The Audit Type passed from PIH getAuditDetails() method as an Integer.
custID	The customer ID number.
cashierID	The ID number of the cashier who performed the audit.
auditResults	• 0 = No Validation Occurred • 1 = Validation Passed • 2 = Validation Failed • 3 = Visual Audit Passed • 4 = Visual Audit Failed • 5 = Full Audit required (either from PIH or the fact that there were too many failures during the spot audit) • 6 = Cashier Bypassed the Audit
numFailedItems	The number of failed items in the audit, if any.

Chapter 9. Associate Line Busting

This section describes how to deploy, install, and use the Associate Line Busting (ALB) solution.

Associate Line Busting solution

The Associate Line Busting (ALB) solution allows store associates to use an iOS or Android capable mobile phone to scan the items in a shopper's cart so they can speed through the checkout process. The solution can also send information to the associate about eCoupons related to the transactions.

When an associate scans or keys in an item code using a retailer-supplied mobile device, the ALB application sends the item code to the Mobile Engine running on a server in the store. The Mobile Engine communicates with the 4690 Point of Sale (POS) system to create a POS transaction, and retrieve the item description and price. The item information is sent back to the mobile device so that it can be displayed to the associate. When the transaction is finished, the associate may print a suspend slip with a barcode to give to the shopper. At checkout, the shopper simply scans the barcode on a pay station and the Mobile Engine retrieves the transaction, which allows them to check out without having to re-scan the items selected for purchase.

The ALB solution uses 4690 POS (and its various components for loyalty pricing, weight processing for produce, and tendering capabilities) to generate an actual POS transaction with customer-specific pricing. All payment operations are done using the retailer’s PCI-compliant payment devices at the checkout lane. The mobile application integrates across a wireless network in the store with a virtual session of the POS application which is hosted on a 4690 store server, extending the retailer's current (and often highly-customized and proprietary) POS application functionality to the mobile device. The scanner in the mobile device is used for item bar scanning.

The ALB application also provides a way to send alerts to associates. This Alert feature is simply a mechanism for sending information to associates to let shoppers know about store specials, additional items they may want to purchase, discounts, coupons, or store events. The mobile device can be configured to sound a tone or vibrate whenever a new alert is received to ensure the associate is aware that new information is ready to view. The ALB application also sends information to the Mobile Engine about which alerts the associate viewed. This allows the retailer to maintain statistics about which types of alerts the associate took the time to read.

Highlights: Associate Line Busting

The highlights of the Associate Line Busting (ALB) solution include the following:

- Enables retailer-owned mobile devices to be used for queue busting.
- Uses ACE and Store Integrator to extend point of sale (POS) functionality from the front-end lanes to the queue busting space (for loyalty programs, loyalty pricing, and payment).
- Integrates with Toshiba Store Integrator GUI to expedite customer payment and checkout.
- Allows the associate to sign in using the same 4690 user ID and password they use to sign in at a POS terminal.

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- Entering an item on a mobile device starts a transaction.
- If the Loyalty ID is required, the associate can enter it prior to entering an item. If it is optional, it can be entered at any time during a transaction.
- Item exceptions are auto processed by the POS Business Component (POSBC) and handled at the pay station.
- Audits are suppressed.
- Transactions may be suspended without transferring an order.
- Functionality to end a transaction and print a transaction slip that can be used at the Store Integrator GUI register to retrieve the suspended transaction.

How it works: Associate Line Busting

Deployment and installation

As a part of the Associate Line Busting (ALB) solution, the store associate receives a retailer-owned mobile device with the application preinstalled.

- The retailer is responsible for defining how the application will be deployed to their associates' mobile devices, and they are responsible for any additional information required to configure the application to the store network.
- For iOS, the purchase of an enterprise license from Apple® may be required to distribute the application internally to retailer-owned mobile devices.
- The following devices have been tested with ALB:
  - Motorola MC40 (Android)
  - Ingenico ISMP for iPod Touch (iOS)
  - Honeywell Captuvo SL22 SLED for iPod Touch (iOS)
- Other devices may be available through other service offerings.

Using Associate Line Busting

The following is an overview of how the Associate Line Busting (ALB) application works.

- In the store, the associate presses the icon for the ALB application on their retailer-owned mobile device to launch the application.
- The mobile device must be pre-configured with the appropriate network connection settings.
- The associate is prompted to enter their user ID and password to sign onto the application.
- If WiFi printing is enabled in the store, the application will prompt for the WiFi printer connection information. The connection information can be an IPv4 address or hostname, and can be scanned or keyed into the mobile device. The associate may skip entering the WiFi printer connection information at this point, choosing to provide it later using the menu options.
- If the loyalty number is required, the associate will be prompted to enter the shopper's loyalty number (by either scanning or keying in the number). This loyalty number is saved for the duration of the transaction. If the retailer's POS system supports the Alternate ID entry, the associate can enter a 10-digit phone number to use as the loyalty ID.
- The associate can either scan items with their mobile device scanner or enter item numbers on the mobile device touch screen keypad. If the retailer is using Single Large Expensive Disks (SLED) devices, such as the Motorola MC40, the associate can use the rapid scanning buttons on the device.

- As the associate scans the items in the shopper's transaction, the item number, description, net price, and loyalty savings of the most recent item scanned are displayed along with the running totals and total loyalty savings of the entire transaction. Additional item information can be displayed by touching the item and selecting **Display Item Details**.
- The associate can display and review all items in the transaction by using the **Item List** icon.
  - Associates inform shoppers that weight-required items are weighed at checkout.
- The associate finishes scanning the items, then presses the **Finish** button which suspends the transaction. If WiFi printing is enabled in the store, the associate can optionally print a suspend transaction slip that the shopper can use to retrieve the transaction at a pay station and complete their checkout.
- The shopper pays and completes their shopping.

Note: The Associate Line Busting function, including printing suspended transaction slips, is not supported unless the ALB device is connected to the Mobile Engine through the WiFi network.

Architectural overview: Associate Line Busting

Associate Line Busting POS solution

In addition to the components referenced in “Architectural overview” on page 8 for the Mobile Shopper, the Associate Line Busting (ALB) solution consists of the following components (see Figure 7 on page 20) to provide a total mobile solution for your 4690 Point of Sale (POS) system:

Handheld mobile computer (Motorola MC40, Honeywell Captuvo SL22 Enterprise SLED, and others)

- Very thin interface.
- No sensitive shopper payment information (such as, credit and debit account numbers) is ever entered or stored on the mobile device.

Mobile printers (Toshiba B-EP2DL)

WiFi-based mobile printers allow associates to print suspend transaction slips so that customers can retrieve them at pay stations.

POS Integration Hub: Associate Line Busting

The POS Integration Hub supports the same alert services and mechanisms that the Mobile Shopper supports, with the exception of advertising alerts. See “POS Integration Hub installation” on page 28 for additional details.

Using wireless network configuration and security

The wireless network information for Associate Line Busting (ALB) and the Mobile Shopper are the same. See “Wireless network configuration and security” on page 12 more information. However, for ALB running on Android devices, the wireless network configuration parameters can be configured on the mobile device by using the application settings. For the ALB running on iOS devices, the wireless network configuration parameters must be configured using the iOS device settings.

User interface components

Many of the Associate Line Busting and Mobile Shopper application screens are similar. The following sections describe the differences between the two applications.

For screen flows common to both applications, see “Smart phone application” on page 75.

Application screen layout

The following layout is a view of the Associate Line Busting application screen.

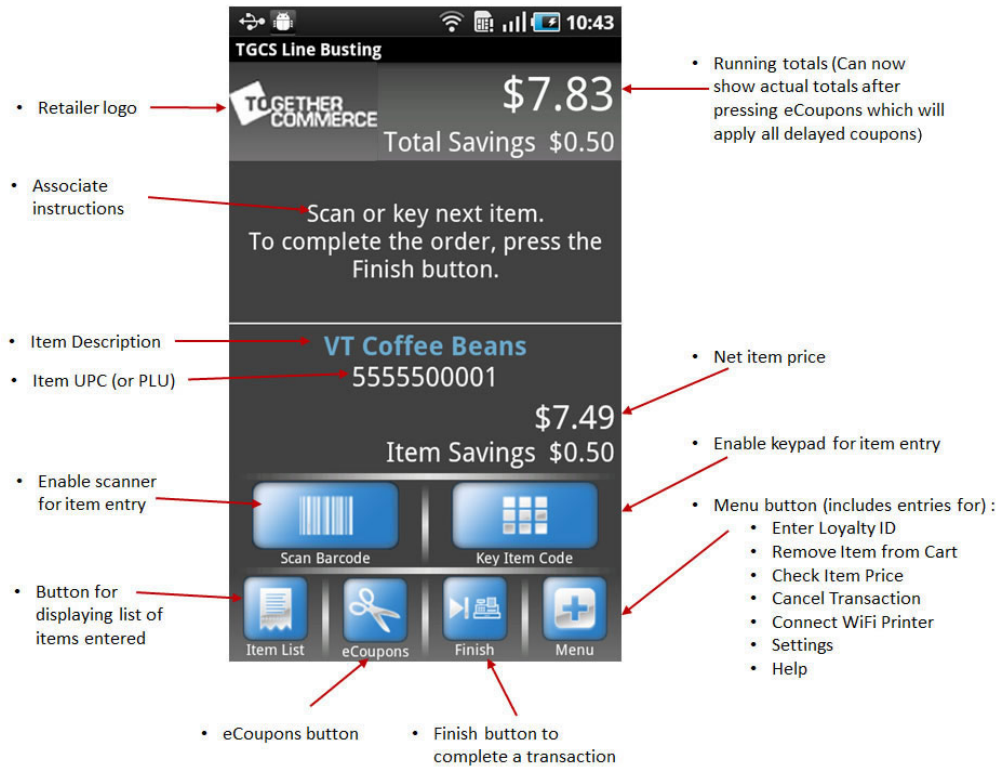


Figure 152. Application screen layout

Menu layout: UI

The following are included on the Associate Line Busting menu. See Figure 153 on page 156 for details.

Enter Loyalty ID

If the customer's Loyalty ID is required, then the application will require the associate to input the information at the start of each transaction and the menu option will not be available.

Remove Item from Cart

To remove an item from the cart by scanning or keying in the item number. This option will only be available if the transaction has items.

Check Item Price

Allows you to check the prices of items you want to purchase.

Alerts

Alerts will inform an associate of alerts specific to a customer, if the Loyalty ID is provided to the application.

Cancel Transaction

Allows a transaction to be cancelled, and a new transaction to start.

Connect WiFi Printer

If WiFi Printing is enabled, then the sales associate can use this option to connect to a WiFi Printer.

Settings

Allows modification of the application configuration. See Figure 154 on page 157 for more details.

Help Allows the associate to access help information.

Notes:

1. On iOS devices, the Settings option does not appear on the application menu. Settings are accessed through the Settings area of the iOS and not within the application menu.
2. A traditional application navigation bar on the top of the screen is used for screen navigation on the mobile device. The navigation bar contains a button to return to the previous screen. The **Back** button does not exist on the bottom of the screen.

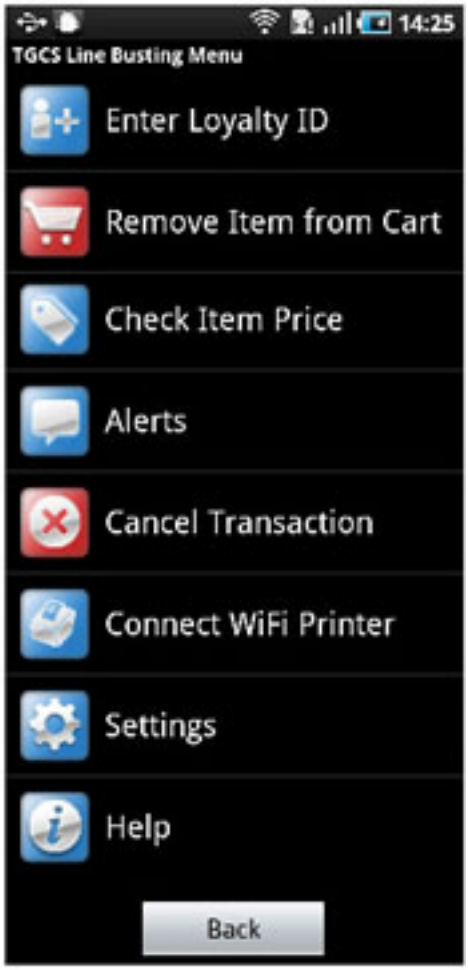


Figure 153. Associate Line Busting menu

Settings

Settings are used to modify the application configuration and are accessed through the Settings area on the iOS. These settings allow the associate to do the following:

- Enter or change the customer loyalty number. No default is specified.
- Enable or disable the ability of the mobile phone to vibrate when a new alert arrives. The default is On.
- Enable or disable the ability for the mobile phone to play an alert sound when a new alert arrives. The default is On.
- Select the screen orientation (left hand or right hand). The default is right hand.
- Select the language of the text that is displayed.
- Access advanced settings to change network and security information. For the iOS, there is no **Advanced Settings** entry. The **Advanced Settings** are displayed in the same list as the other settings.
- Display the application version information.

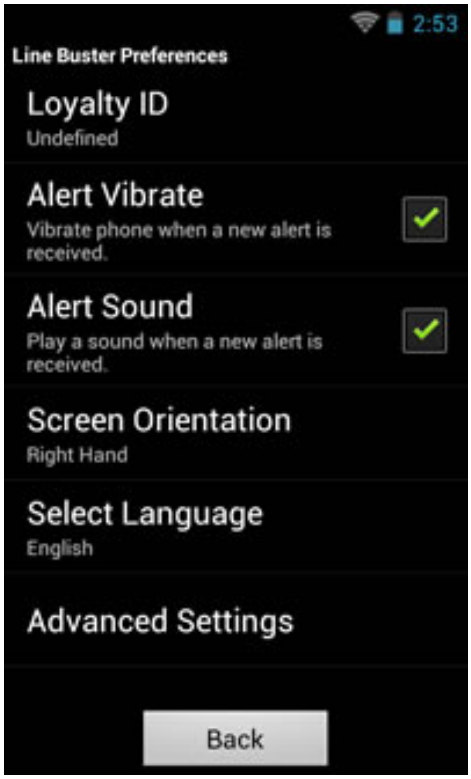


Figure 154. Associate Line Busting preferences

Associate Line Busting screen flows

In general, the screen flows between the Associate Line Busting (ALB) and the Mobile Shopper applications are similar. The following sections describe the significant differences.

Sign on user ID and password

The following depicts the scenario for signing on with an ID and password:

Table 43. Sign on user ID and password

Mobile Device Display	Associate Steps	Notes/Message Flow
 Figure 155. Associate Line Busting icon	Press the **ALB** icon on the retailer-supplied mobile device.	This scenario assumes the retailer has already installed the application on the mobile device.

Table 43. Sign on user ID and password (continued)

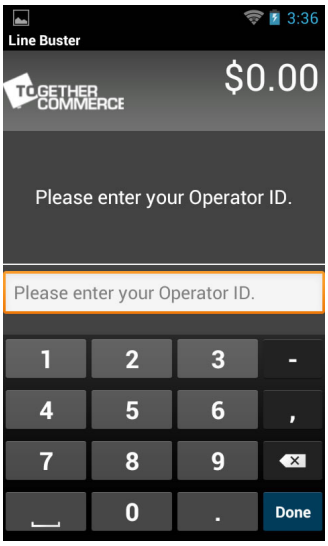
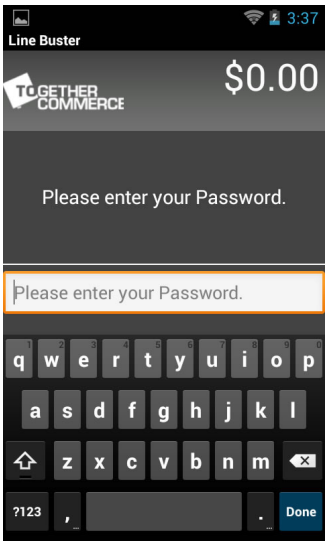
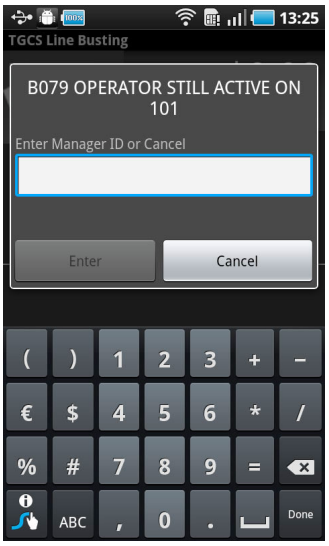
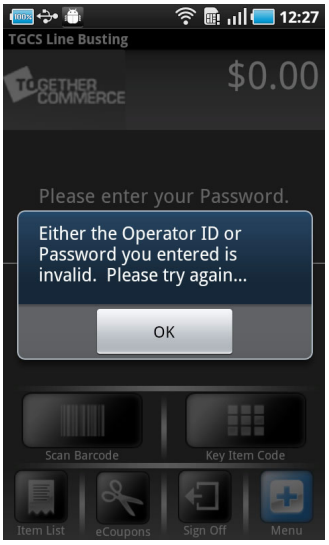
Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 156. Press Done*	The application prompts the associate for their user ID. Enter the user ID and press **Done**.	
 *Figure 157. Prompt for password*	The application prompts the associate for their password. After validating the user ID and password, continue to the next step.	The passwords are masked for security. On some Android devices it is possible to turn off "Visible passwords" so that the user input is displayed for a brief moment before it is masked. This feature is provided by the manufacturer of the device.

Table 43. Sign on user ID and password (continued)

Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 158. Prompt for manager override*	If the associate is logged on a different terminal, the application prompts for a manager override.	In order for the application to prompt for the manager override, the POS system needs to be configured to require a manager override if an operator is already active on a different terminal.
 *Figure 159. Associate's credentials are invalid*	If the associates' credentials are invalid, the screen shown in Figure 159 is displayed and the associate presses **OK** to try again.	The credentials will also be returned as invalid if either the length of the operator ID or password submitted exceeded the length values set in the `mobileserver.properties` file.

WiFi printing

WiFi printing must be enabled in the store for the following screens to appear:

Table 44. WiFi printing enabled

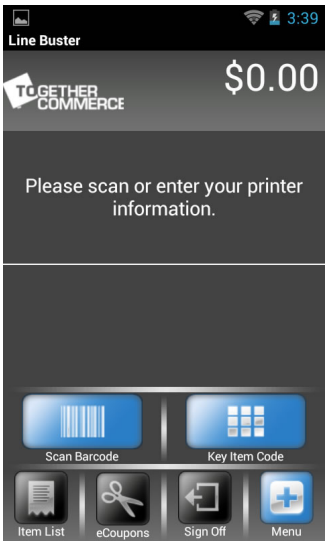
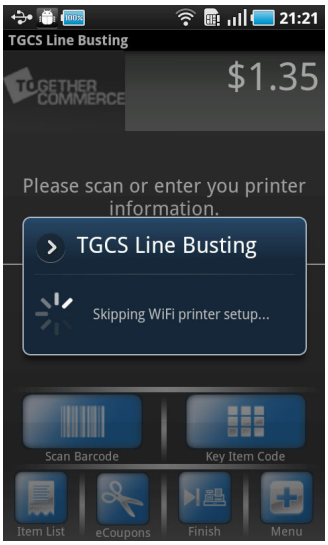
Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 160. Prompting for WiFi printers*	The application prompts the associate to provide their WiFi printer connection information.	Information can be an IPv4 address or hostname if DNS is enabled in the store network. The information can be scanned in using a Code 128, a QR barcode, or by keypad. The associate can skip providing the printer information by pressing the Apple and Android **back** buttons, and can provide the information later using the menu options.
 *Figure 161. Skip configuration of WiFi printer*	The associate can choose to skip configuration of a WiFi printer for their mobile device by pressing the Android **back** button. For iOS, the associate can press the **back** button to skip the configuration of a WiFi printer.	The WiFi printer can be configured from the menu options.

Table 44. WiFi printing enabled (continued)

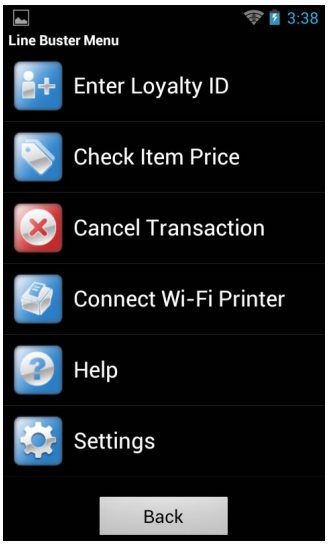
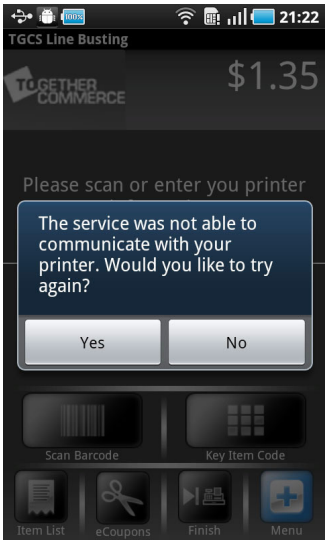
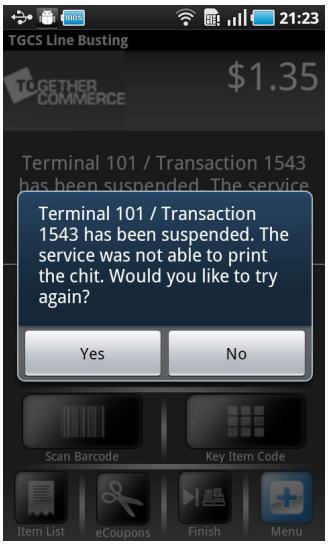
Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 162. Associate connecting to a printer*	The menu options provide the ability for an associate to connect to a printer.	This can be used if the printer setup was skipped during the sign on process. It can also be used to substitute a failing printer (for example, a low battery) with a new printer. This capability can be used during a transaction regardless of the cart having items.
 *Figure 163. Application unable to connect (1 of 2)*	The message in Figure 163 is displayed if the application is unable to connect with a printer during the initial printer setup.	If the associate selects **Yes**, they are returned to the screen where they can provide the connection information to attempt to connect with the printer again.

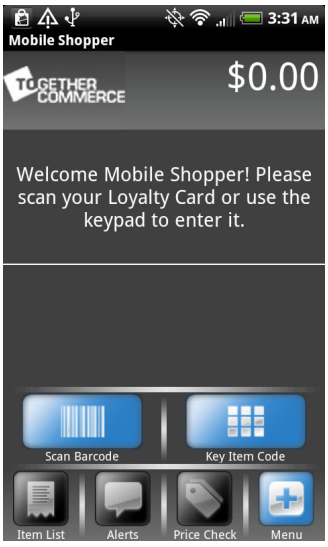
Table 44. WiFi printing enabled (continued)

Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 164. Application unable to connect (2 of 2)*	The message in Figure 164 is displayed if the application is unable to connect with a printer during the request to print a suspend slip.	If the associate selects **Yes**, the application attempts to print the slip again.

Loyalty number

The following depicts the scenario if the Loyalty number is required or optional:

Table 45. Loyalty number

Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 165. Customer's loyalty ID*	Scan or key in the customer's loyalty ID.	If the loyalty number is required, the associate is prompted for it prior to being able to add items. If the loyalty ID is optional, the associate can provide it through menu options. After the loyalty number is entered, it is displayed in Settings and does not have to be entered again during the transaction.

Normal checkout

After the associate has signed onto the application, provided the WiFi printer information is enabled and the customer loyalty information is entered (if required),

the associate can start entering items for the transaction. See “Normal checkout: start application, sell item, price check, complete Txn.” on page 79 for additional details on adding items to the application.

If the retailer is using supported handheld mobile computers, such as the Motorola MC40, the associate can use the hardware scanning buttons to add items to a transaction in addition to using the touch screen **Scan Barcode** button.

Table 46. Normal checkout

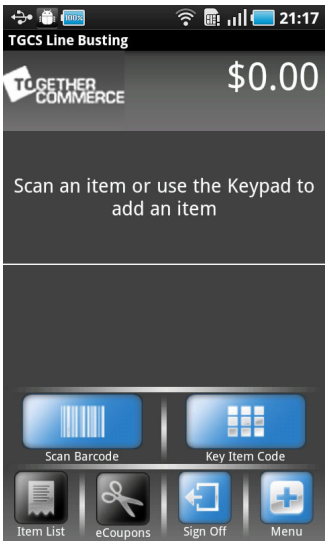
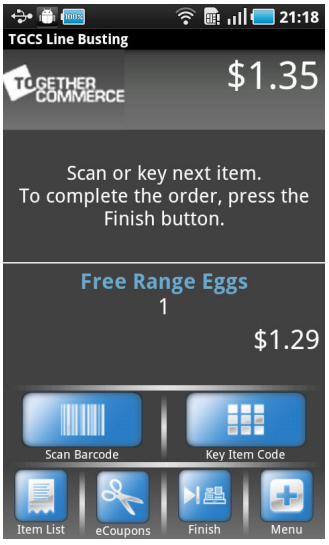
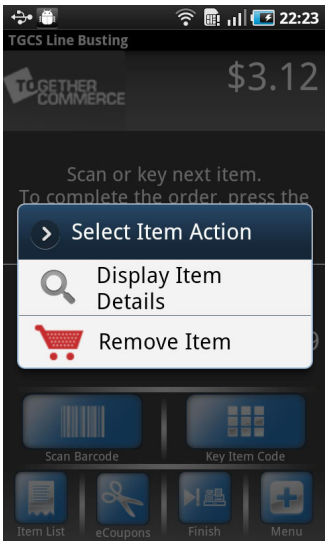
Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 166. Completing steps*		After completing the previous steps, Figure 166 is displayed. At this point, the associate can scan or key an item to add it to the transaction, or perform a price check by pressing the **Menu** button, then pressing **Price Check**.
 *Figure 167. Looking up an item*	Press the **Scan Barcode** button and scan the product barcode.	While the application is looking up the item, the mobile device displays the message `"Processing scanned data..."` After the item is added to the order, item details are displayed and transaction totals are updated. The next message asks to scan or key the next item, or press **Finish** to complete the order.

Table 46. Normal checkout (continued)

Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 168. Message window*	Press the screen inside the box that shows the item description, item number, and price. A message is displayed (see Figure 168) and you must choose to either remove the item or display the item details.	The associate can press the Android **back** button to end.

Finish and suspend transaction

The following section describes how to finish and suspend a transaction.

Table 47. Finishing and suspending transactions

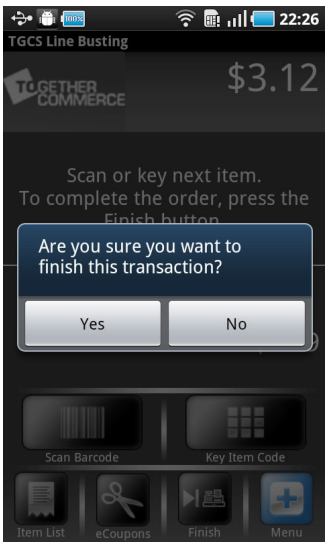
Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 169. Press Finish - suspending a transaction*	Press the **Finish** button and the application will prompt you to confirm and finish the transaction.	

Table 47. Finishing and suspending transactions (continued)

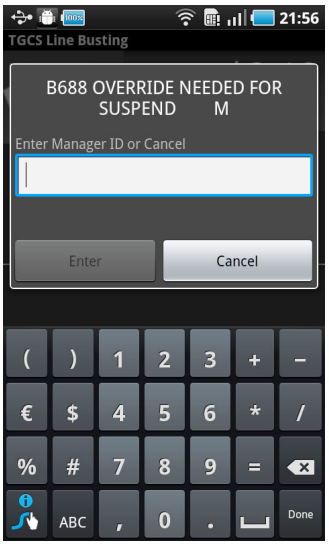
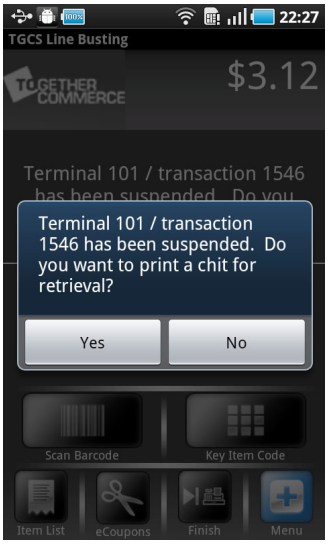
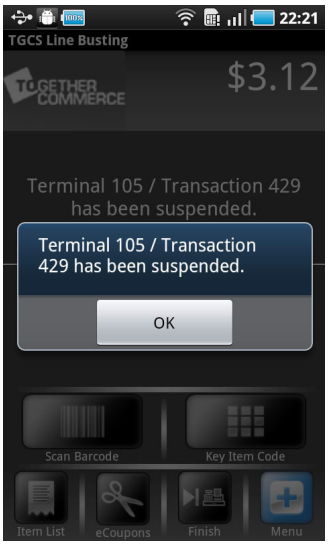
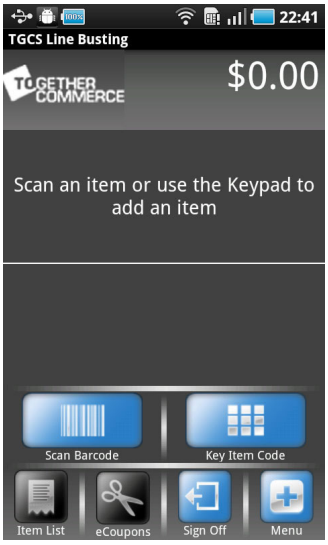
Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 170. Obtaining a manager override*	If **Retrieve needs managers' override** is turned on in the POS system, the application prompts the associate to obtain a manager override for the transaction.	
 *Figure 171. WiFi printing is enabled*	If WiFi printing is enabled, the application prompts the associate to print a slip.	The slip can be used to retrieve a transaction for the shopper at a pay station. The shopper can then check out.

Table 47. Finishing and suspending transactions (continued)

Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 172. WiFi printing is not enabled*	If WiFi printing is not enabled, the application will inform the associate that the transaction has been suspended.	
 *Figure 173. Beginning a new transaction*	The associate begins a new transaction.	If a Loyalty ID is required, the application will prompt the associate for the customer's Loyalty number (see “Loyalty number” on page 162) before allowing the associate to enter items.

Starting the Associate Line Busting application during a blackout period

Blackout periods are not a feature in Associate Line Busting. This feature is only available in the Mobile Shopper. For blackout periods in the Mobile Shopper, see “Starting Mobile Shopper during a blackout period” on page 84.

Starting the Associate Line Busting application when not enough Client Session Server sessions

If an associate attempts to begin a session when there are an insufficient number of client sessions, a message is displayed to the associate. See “Starting the Mobile Shopper when not enough Client Session Server sessions” on page 85 for more information.

Cancelling a transaction

The following scenarios demonstrate what happens when an associate decides to cancel a transaction in the middle of an order. The application is in the "add item" mode.

Table 48. Cancelling a transaction

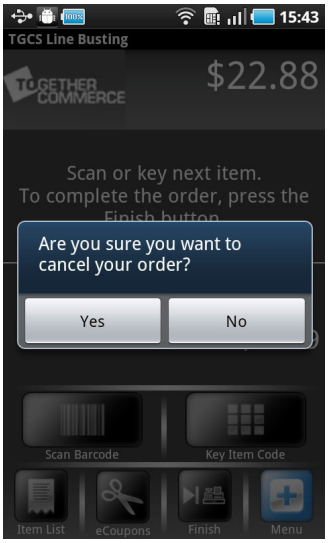
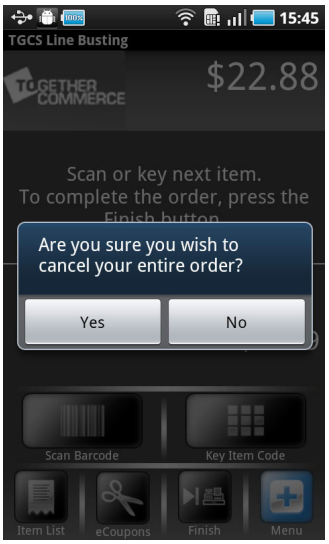
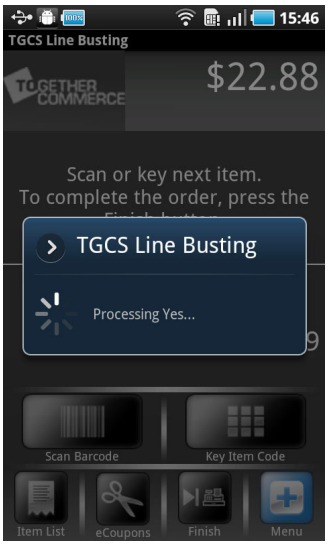
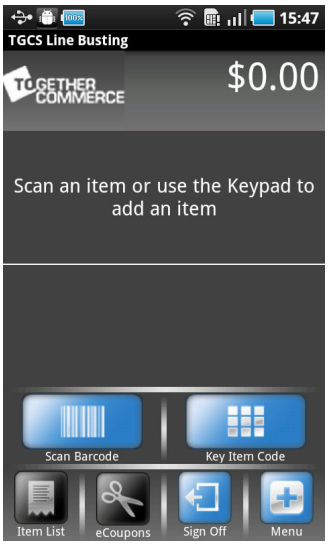
Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 174. Cancel Transaction*	Press **Menu**, and then **Cancel Transaction**. The mobile device responds with `"Are you sure you want to cancel your order?"` Press **Yes**.	If the associate presses **No** here, they will return to the "add item" mode.
 *Figure 175. Confirmation request*	Press **Yes** when the confirmation request is displayed.	If the associate presses **No**, they are returned to the "add item" mode.

Table 48. Cancelling a transaction (continued)

Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 176. Processing Yes*		The `"Processing yes..."` message is displayed while the order is being canceled.
 *Figure 177. Add item mode*	The associate is returned to the add item mode where they may begin a new transaction.	

Various item exceptions

This scenario describes an attempt to sell an item having any of the following conditions:

- Item is not in the item file.
- Item is configured as "not for sale" in the item file.
- Item is configured as "price required" in the item file.
- Too many items purchased.

These scenarios involve exceptions and are handled differently:

- Item is configured as "quantity restricted" in the item file and the maximum number of items have already been sold (the restrictions are defined in the point of sale (POS) application personalization).

- Item requires an account number (such as: Gift Card activation) in the item file.
- Item has a barcode that includes an account number for the item (such as: Blackhawk 1-step Gift Cards).
- EAS items follow the "Normal Checkout flow", but they do log an exception.

Note: UPC-2 items, other item types (deposit items and miscellaneous sale items), other pricing methods (1-4) all work like normal sale items. See “Normal checkout” on page 162 for these items. The mobile device should be in a state where it is ready to scan an item.

Table 49. Various item exceptions

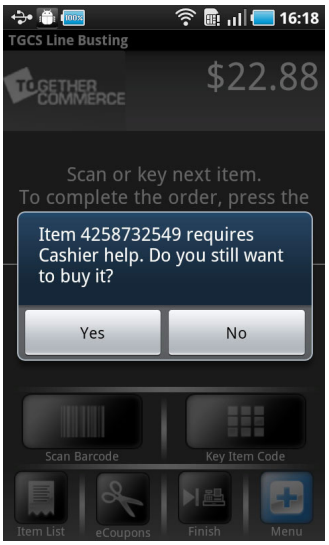
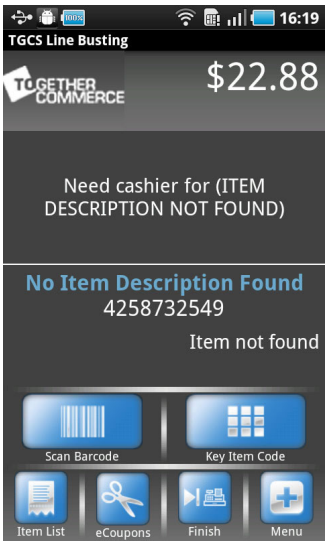
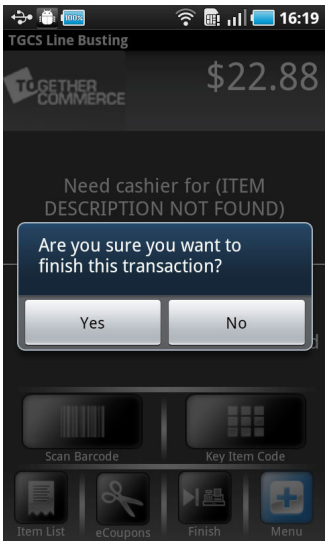
Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 178. Product not found in item file*	1. The associate presses **Scan**, then scans a product not found in the item file. 2. Then presses **No** to return to **Item Entry**. The associate presses **Yes** to add the item to the order.	Application prompts: "Item requires cashier help. Do you still want to buy?” The display is the same for all these exceptions: • Item not found • Not auth for sale • Price-Required • Time-Restricted • Too many items purchased
 *Figure 179. Item exception is registered*	The associate can scan or key more items at this point.	Assuming the associate pressed **Yes** to purchase the item, an item exception is registered that will be visible to the cashier at checkout time. The item is displayed and will appear in the item list, but no price is included in the totals and the details of the exception will be shown on the screen (here the example is "Item not found"). The display is the same for all these exceptions: • Item not found • Not auth for sale • Price-Required • Time-Restricted • Too many items purchased

Table 49. Various item exceptions (continued)

Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 180. Finish to complete transaction*	The associate presses the **Finish** button to complete the transaction. The associate presses **Yes** to finish the transaction.	For more details on finishing the transaction, see “Finish and suspend transaction” on page 164.

For more details on Associate Line Busting screen flows, see the following sections:

- "**Item type not allowed to be sold exceptions**" - see “Item type not allowed to be sold exceptions” on page 87.
- "**Time restricted item entry**" - see “Time restricted item entry” on page 89.
- "**Value card processing**" - see “Value card processing” on page 90.
- "**Age restricted item exception**" - see “Age-restricted item exception” on page 91.
- "**Quantity required item entry**" - see “Quantity required item entry” on page 92.
- "**Coupon scanned during the transaction**" - see “Coupon scanned during the transaction” on page 95.
- "**Removing items**" - see “Removing items” on page 95, “Removing an item from the Item Entry screen” on page 95, “Removing an item from the Item List” on page 98, and “Removing an item using the menu icon” on page 100.
- "**Item details**" - see “Item details” on page 105.

Transaction alerts

This flow demonstrates the steps to view transaction alerts that can occur while shopping. See Table 50 for an overview.

Table 50. Viewing transaction alerts

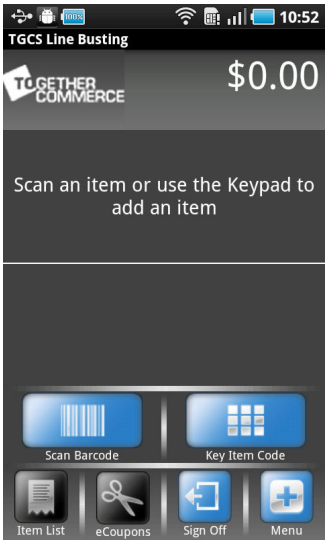
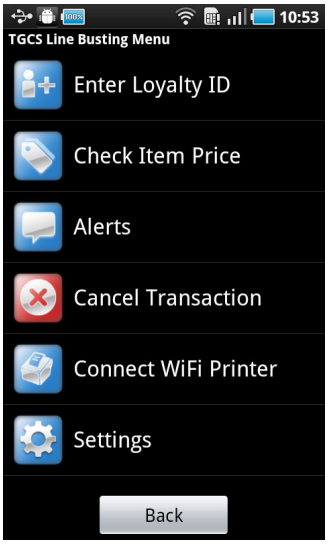
Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 181. Associate signing in*	Associate has signed in to the application and has entered a customer loyalty number.	There will be an audible notification on the mobile device if it is enabled in the settings.
 *Figure 182. Pressing Menu, then Alerts options*	The associate presses the **Menu** button and then presses the **Alerts** option from the menu.	When the associate presses the **Alerts** option, the mobile application sends a message to the Analytics service to track how many times this associate pressed that option.

Table 50. Viewing transaction alerts (continued)

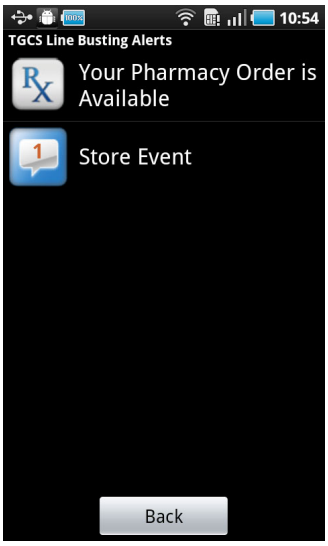
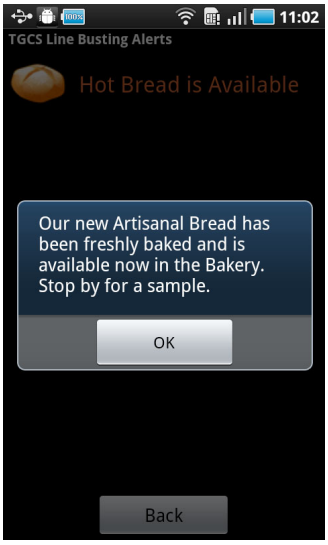
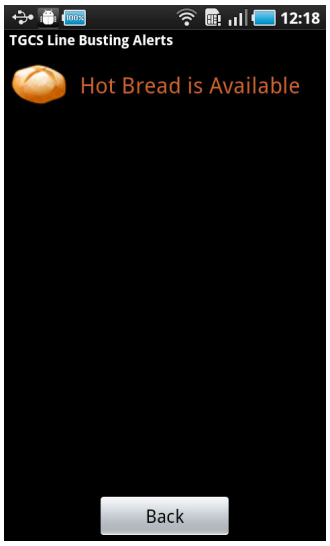
Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 183. Pressing Store Event*	The associate presses the **Store Event** button from the Menu.	
 *Figure 184. Associate presses Alert*	The associate presses the **Alert** option.	

Table 50. Viewing transaction alerts (continued)

Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 185. Getting to the Alerts menu*	The associate presses **OK** and is returned to the previous screen. If the associate presses **Back**, the application displays the **Alerts** menu.	

eCoupons

This flow demonstrates the steps to view and use the eCoupon feature.

Table 51. Accessing eCoupons

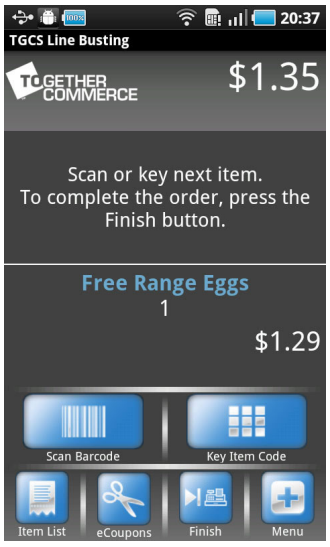
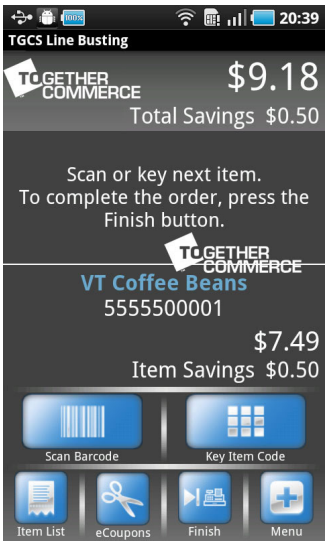
Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 186. Accessing eCoupons*	If the transaction has items, the **eCoupons** button is available.	

Table 51. Accessing eCoupons (continued)

Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 187. Pressing the eCoupons button*	The associate presses the **eCoupons** button and the totals section will update with any savings the shopper is entitled to once the eCoupons are applied.	

For more details on the Mobile Shopper, see the following sections:

- "**Item alerts**" - see “Item Alerts” on page 112.
- "**Transfer order from failed mobile device to a different mobile device**" - see “Transfer order from a failed mobile device to the store's mobile device” on page 117.
- "**Mobile device temporarily loses connectivity while shopping**" - see “Mobile device temporarily loses connectivity while shopping” on page 119.

Sign off

This flow demonstrates the steps to sign off the application.

Table 52. Sign off the application

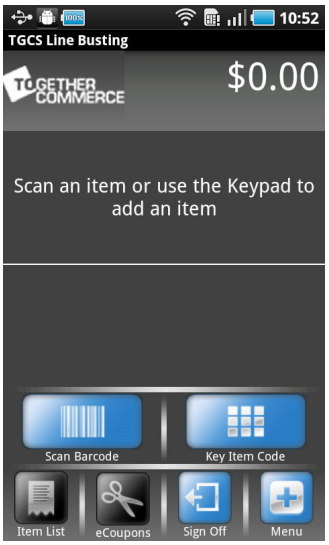
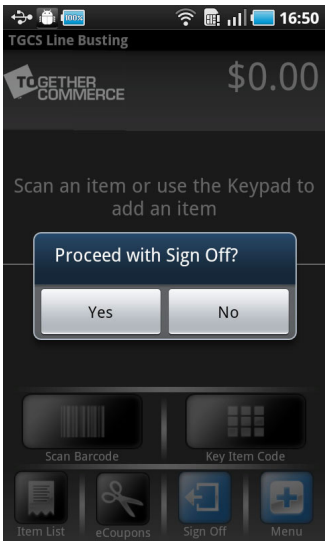
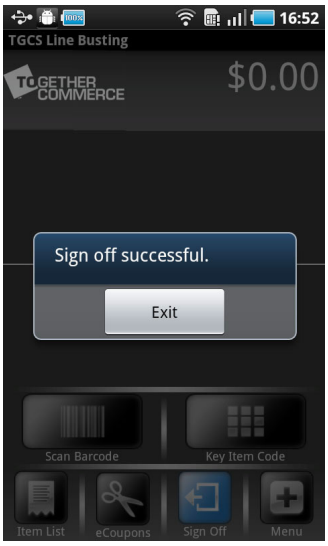
Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 188. Sign Off button enabled*	If the transaction does not have any items, the **Sign Off** button is enabled.	
 *Figure 189. Pressing Sign Off*	When the associate presses **Sign Off**, the application prompts the associate for confirmation. If the associate selects **No**, they are returned to the Add Items screen.	

Table 52. Sign off the application (continued)

Mobile Device Display	Associate Steps	Notes/Message Flow
 *Figure 190. Associate signing out*	If the associate selects **Yes**, the application will sign the associate out and display a confirmation message. Next, press **Exit** to terminate the application.	

Configuring the Motorola MC40 for Associate Line Busting

The Motorola MC40 is a pocket-sized handheld mobile computer that can be used with the Associate Line Busting (ALB) application. Before using the Motorola MC40 with ALB, it must be configured to read various barcode symbols and to communicate with the Mobile Shopper application. You must install ALB on the Motorola MC40 before you start configuration.

The MC40 DataWedge application must be used to create a profile that includes the required configuration information. See detailed instructions on using the DataWedge application in the *MC40 Integrator Guide*. The following information is provided to show how to set various DataWedge configuration options and to allow the Motorola MC40 to function correctly when used with ALB.

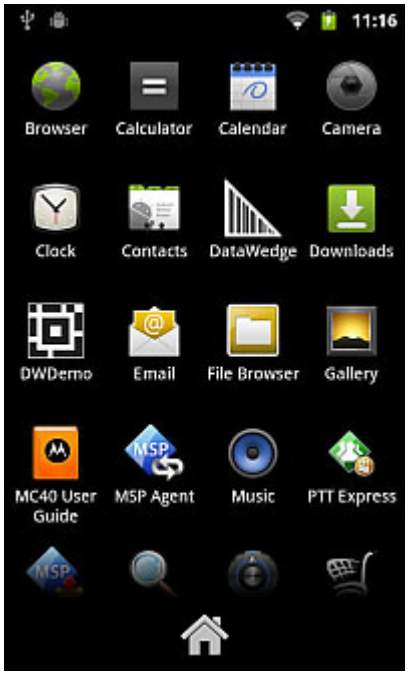
As shown in Figure 192 on page 177, you can access the DataWedge application by doing the following:

1. Press the Android **Home** button to display the home screen.

Figure 191. Android home button

2. Select the **All Apps launcher** icon.
3. Select the **DataWedge launcher** icon from the list of applications.

Table 53. Starting the MC40 DataWedge Configuration Application

	
Figure 192. Starting the MC40 DataWedge Configuration Application (1 of 2)	*Figure 193. Starting the MC40 DataWedge Configuration Application (2 of 2)*

A DataWedge profile must be created that specifies how the Motorola MC40 will function with the Associate Line Busting application. To create a new profile, start the DataWedge application and perform the following steps:

1. Press the Android **Menu** button from the DataWedge Profile screen to see a list of actions at the bottom of the screen.

Figure 194. Android menu button - DataWedge Profile screen

See Figure 195 on page 178, Figure 196 on page 178, Figure 197 on page 179, and Figure 198 on page 179 for information on creating a new MC40 Configuration Profile.

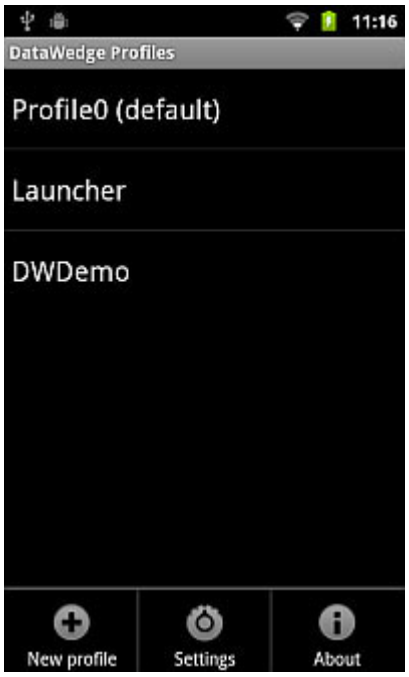


Figure 195. Creating a new MC40 configuration profile (1 of 4)

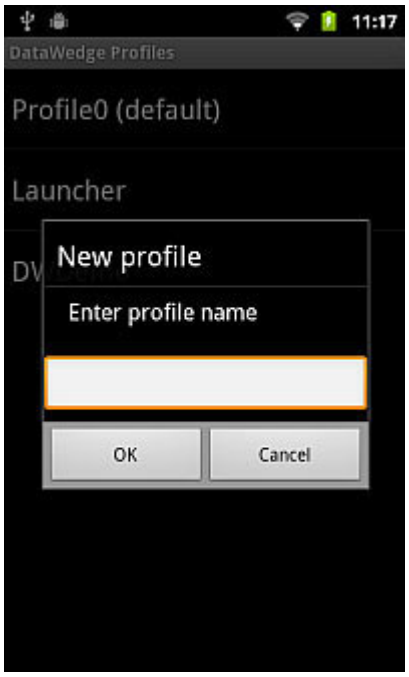


Figure 196. Creating a new MC40 configuration profile (2 of 4)

Figure 197. Creating a new MC40 configuration profile (3 of 4)

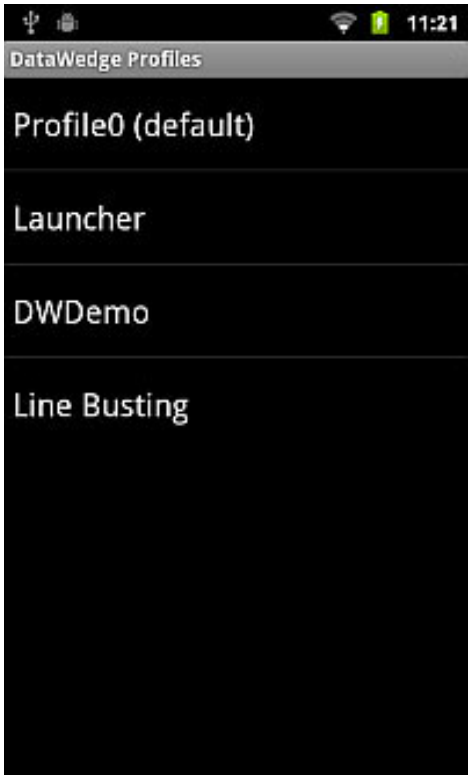


Figure 198. Creating a new MC40 configuration profile (4 of 4)

2. If you make a mistake and want to delete the profile you just created, press and hold the entry you created from the DataWedge Profiles screen, and then select **Delete profile**.
3. From the DataWedge Profiles screen, touch the profile you just created to display the profile details. Ensure the **Profile enabled** checkbox and the **Barcode Input Enabled** checkbox are selected. The Scanner selection should be set to "Auto" (2D image), as shown in Figure 199.

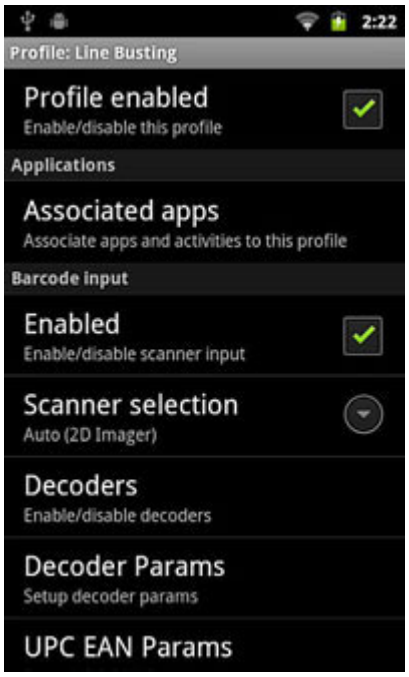


Figure 199. MC40 Profile screen

4. Select **Associated apps**, press the Android **Menu** button, and select **New app/activity** (see Figure 200 on page 181).
5. On the Select application screen (see Figure 201 on page 181), scroll through the list of applications and select the application named `com.tcx.mobile.alb`.
6. On the Select activity screen (see Figure 202 on page 182), rotate the mobile device (landscape mode) and select the asterisk entry. After you have completed the **Associated apps** step, the associations listed should match what is shown in Figure 203 on page 182.

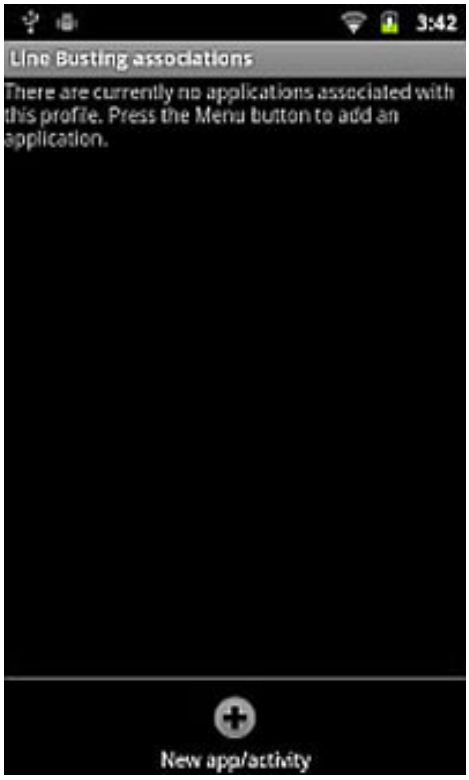

3:42
Line Busting associations
There are currently no applications associated with this profile. Press the Menu button to add an application.
New app/activity

Figure 200. MC40 configuration profile (1 of 4)

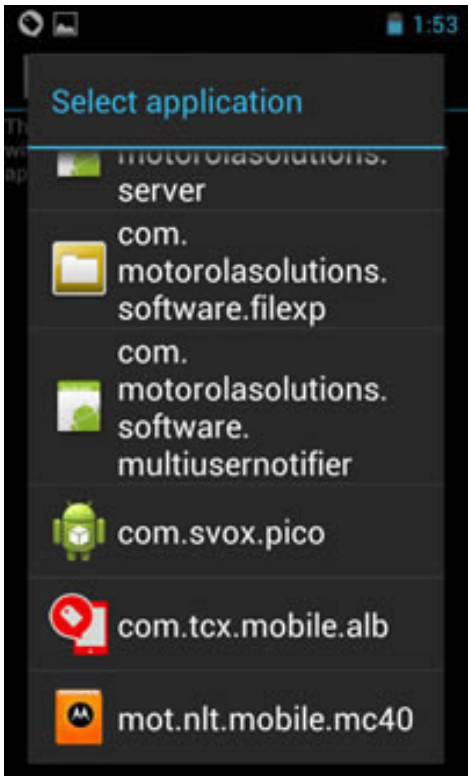


Figure 201. MC40 configuration profile (2 of 4)

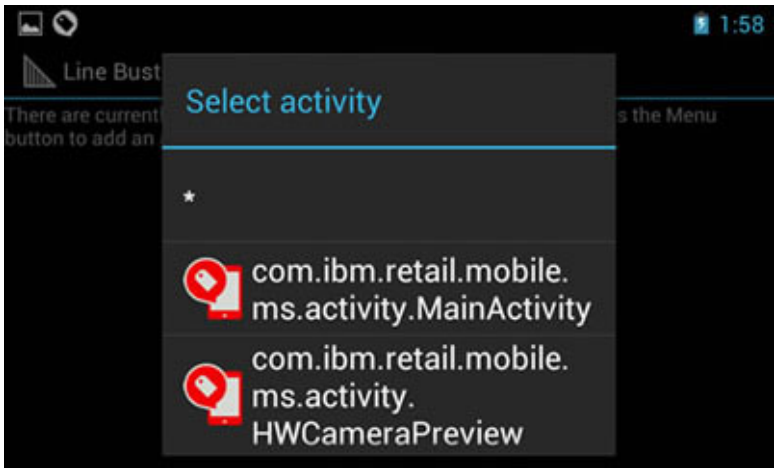


Figure 202. MC40 configuration profile (3 of 4)

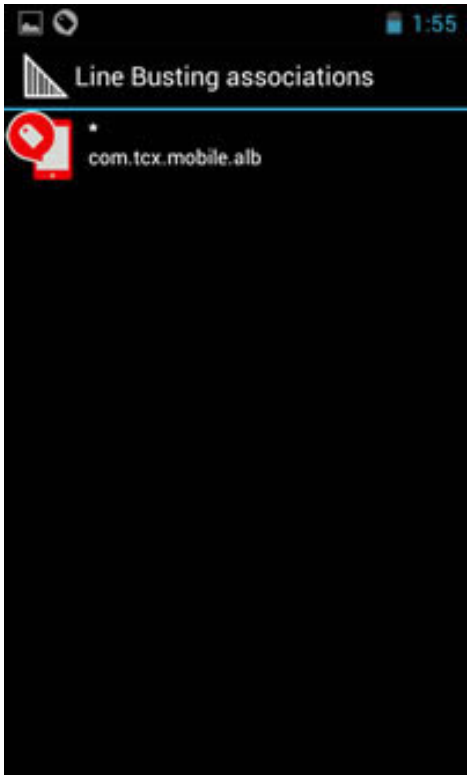


Figure 203. MC40 configuration profile (4 of 4)

7. Press the Android **Back** button to return to the Profile screen (see Figure 199 on page 180), and then select **Decoders** to see the list of barcode symbols that can be enabled and read by the Motorola MC40. Add a check to the checkbox of each symbol you want to enable (see Table 54 on page 183 for details). For better performance, only enable the barcode symbols that are required.

Table 54. MC40 "Decoders" configuration screens

Figure 204. MC40 "Decoders" configuration screens (1 of 6)

Figure 205. MC40 "Decoders" configuration screens (2 of 6)

Figure 206. MC40 "Decoders" configuration screens (3 of 6)

Figure 207. MC40 "Decoders" configuration screens (4 of 6)

Figure 208. MC40 "Decoders" configuration screens (5 of 6)

Figure 209. MC40 "Decoders" configuration screens (6 of 6)

8. Press the Android **Back** button to return to the Profile screen (see Figure 199 on page 180), and then select **Decoder Params**. A list of the barcode symbols that can be configured are shown. Select the symbols (see Table 55 on page 184) and ensure they are configured as shown. Contact the Toshiba Global Commerce Solutions support personnel for help with configuring barcode symbols that are not included in Table 54.

Table 55. MC40 "Decoders Params" configuration screens

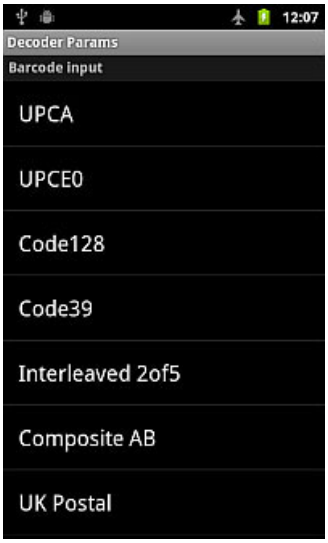


Figure 210. MC40 "Decoder Params" (1 of 5)

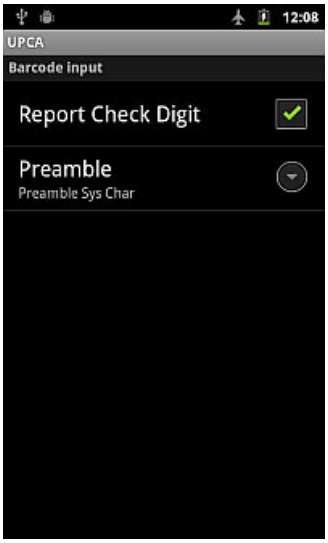


Figure 211. MC40 "Decoder Params" (2 of 5)

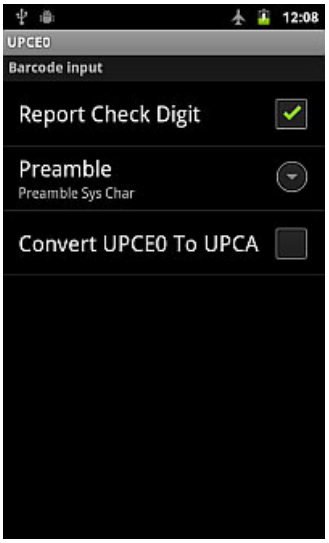


Figure 212. MC40 "Decoder Params" (3 of 5)

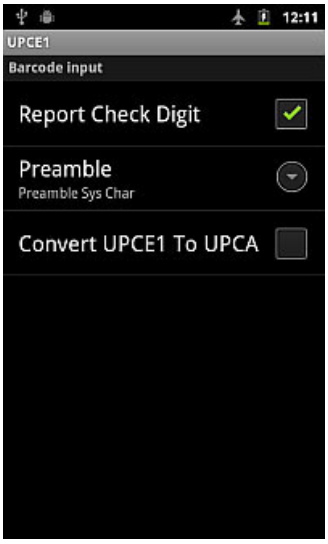


Figure 213. MC40 "Decoder Params" (4 of 5)

Figure 214. MC40 "Decoder Params" (5 of 5)

9. Press the Android **Back** button to return to the Profile screen (see Figure 199 on page 180), and then select **UPC EAN Params**. The **UPC EAN Params** configuration can be used to enable **UPC/EAN** supplemental 2 and 5 barcodes that are typically found on magazines and books. Normally the ACE and/or SA applications do not support these barcode symbols without modifications to the Label Format Table. If these changes have *not* been made to your POS system, do not enable these symbol types on the associated device.

If your POS system supports these barcode formats, enable the check boxes as shown in Table 56 on page 185:

1. Ensure the "Supplemental Mode" is set to "Supplemental Auto" and "Convert Databar to UPC' is not *not* checked. "Bookland" and "Coupon" can be checked if desired.

Table 56. MC40 File Browser application

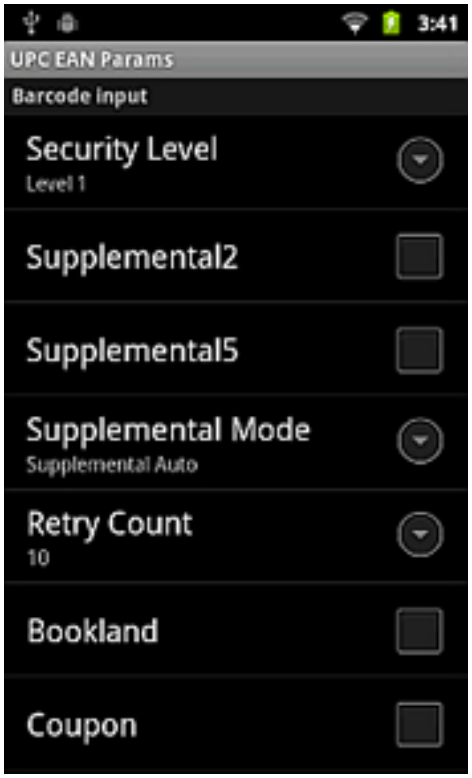


Figure 215. MC40 File Browser App (1 of 2)

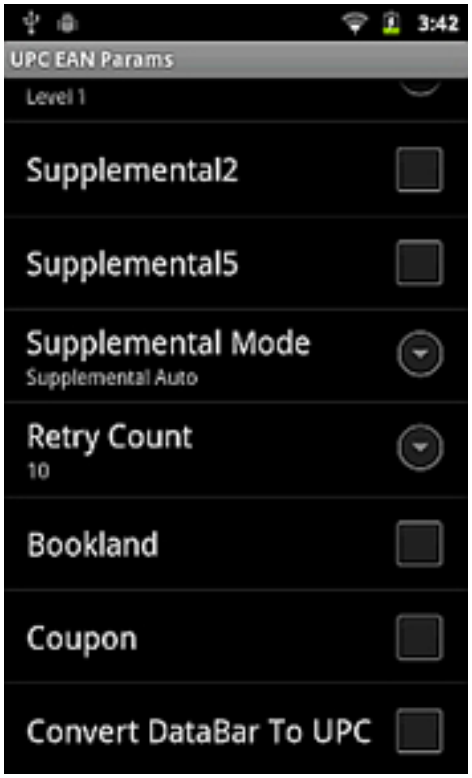


Figure 216. MC40 File Browser App (2 of 2)

2. Press the Android **Back** button to return to the Profile screen (see Figure 199 on page 180), and then scroll down to the "Keystroke output" section as shown in Figure 217 on page 186. Ensure the **Enabled** checkbox is *not* checked. Enabling keystroke output will cause the results of a scan to be entered in fields that expect keyed input, and therefore this feature should be disabled.

Figure 217. MC40 "Keystroke output" configuration

Press the Android **Back** button to return to the Profile screen (see Figure 199 on page 180), and then scroll down to the "Intent output" section. Perform the following steps:

1. Check the **Enabled** checkbox.
2. Select **Intent Action** and enter an action name of:

   `com.tcx.MC40ScannerAction`
3. Select **Intent delivery** and choose **Broadcast intent**.

   After you have completed these steps, the Profile screen should match what is shown in the third screen shot of Table 57 on page 187.

Table 57. MC40 "Intent output" configuration

Figure 218. MC40 "Intent output" configuration (1 of 3)

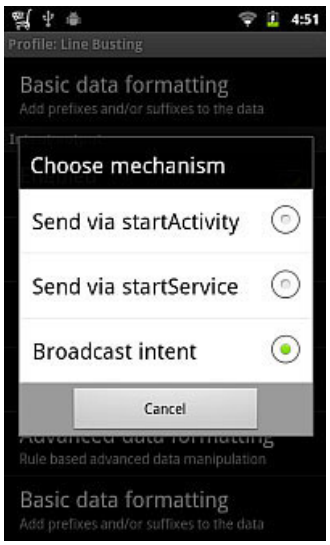


Figure 219. MC40 "Intent output" configuration (2 of 3)

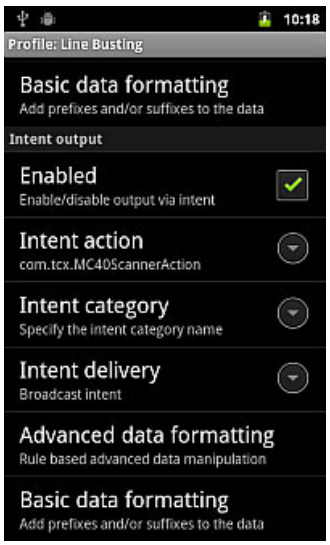


Figure 220. MC40 "Intent output" configuration (3 of 3)

4. Start the Associate Line Busting application and ensure the Motorola MC40 scanner functions properly. Use either the Associate Line Busting application scanner button or the MC40 hardware scanner button to start the Motorola MC40 scanner.

Exporting and importing configuration settings

The DataWedge configuration can be exported to the microSD card so that it can be copied and imported to other Motorola MC40 devices. To export the configuration, do the following:

1. Press the Android **Menu** button from the DataWedge Profile screen to see a list of actions at the bottom of the screen (see Figure 192 on page 177).

Figure 221. Android menu button - DataWedge Profile screen

2. Select **Settings**.
3. Select **Export**.
4. Ensure you select the **SD Card** radio button and then press **Export**.

The configuration will be exported to a file named `datawedge.db` in the`/sdcard` directory of the MC40 device. Copy this file to the `/sdcard` directory of another MC40 device (see “Copying files to the Motorola MC40”) and repeat the steps above, but select **Import** in step 3 to import the configuration to the other device. Refer to the *MC40 Integrator Guide* for additional information on the Motorola DataWedge application.

Copying files to the Motorola MC40

To copy files to the Motorola MC40, do the following:

1. Connect the MC40 to a computer through a USB cable.

2. Swipe downward from the top of the screen to display the Android notifications.
3. Select **USB connected**.
4. Click **Turn on USB storage**.
5. Click the **OK** button on the "Turn on USB storage" screen.

Performing the previous steps will enable you to copy files from your computer to the MC40 device. On Windows, the MC40 device will appear as some drive letter after the steps above are performed. You can copy an exported `datawedge.db` file (see “Exporting and importing configuration settings” on page 187) from the device to your computer or copy the file from your computer to a new MC40 device. You can also copy an Android application `.APK` file to your MC40 device to install it.

After you have copied the files to/from your MC40 device, do the following steps:

1. Swipe downward from the top of the screen to display the Android notification.
2. Select **Turn off USB storage**.
3. Click the **Turn off USB storage** button.

When the “Turn on USB storage” is enabled, you cannot access the files from your MC40 device. You must turn off the USB storage option first and then you can import the `datawedge.db` file you copied to the device, or access files you copied to the device using the "File Browser" application (launch the File Browser application from the All Applications screen), as shown in Figure 222.

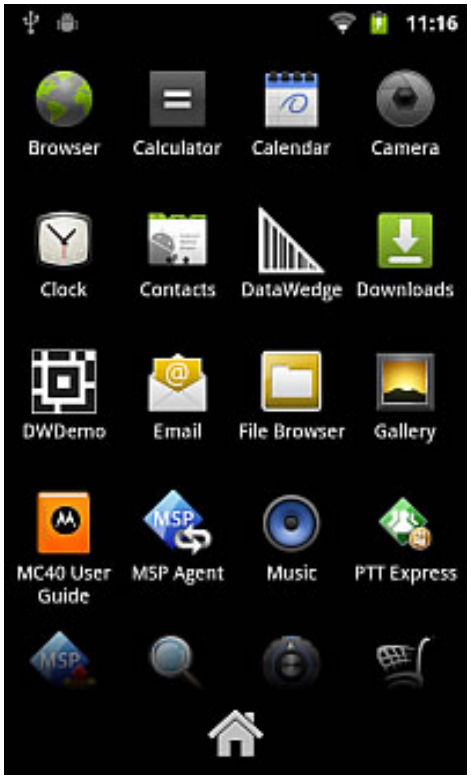


Figure 222. Launching the "File Browser" application from the All Applications screen

To install an Android application `.APK` file, click on the `.APK` file from the File Browser screen.

WiFi settings

The *MC40 Integrator Guide* (accessible at www.motorolasolutions.com) provides detailed instructions for configuring the Motorola MC40 WiFi settings. This section only highlights some of the WiFi settings that can require special settings.

To access the WiFi settings on the MC40, do the following:

1. Press the Android **Home** button.

Figure 223. Android home button

2. Press the Android **Menu** button.

Figure 224. Android menu button

3. Select **Settings**.
4. Select **Wireless & networks**.
5. Select **WiFi settings**.

Deselecting the **Network notification** checkbox can result in better WiFi stability, especially when there are multiple WiFi networks available as is often the case in a test lab (see Figure 225 on page 190). The Toshiba Global Commerce Solutions Android application automatically connects to the required WiFi network, so it is not necessary for the Android WiFi to continuously scan for new WiFi networks and notify the user when one is discovered. Un-checking this setting might also result in a better battery life.

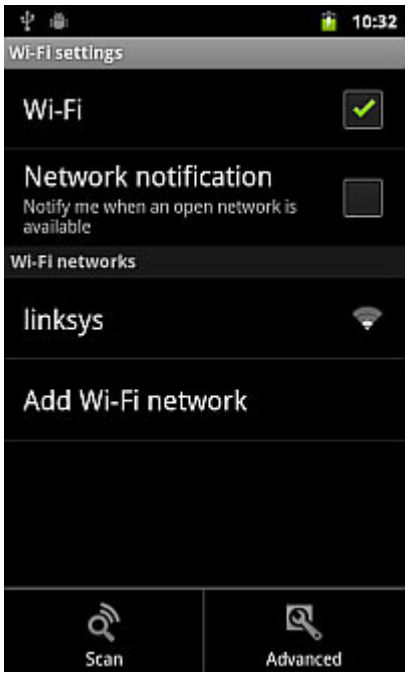


Figure 225. WiFi settings - network notification

Pressing the Android **Menu** button from the WiFi settings screen will cause the Scan and Advanced options to be displayed (see Figure 225). Press **Advanced** to display additional WiFi options.

For better performance, consider setting the WiFi sleep policy to "Never" (see Table 58 on page 191). Setting the WiFi sleep policy to "Never" should prevent the mobile device from disconnecting from the Mobile Engine when the MC40 device screen goes off (that is, the device switches to power saving mode). If the WiFi is configured to sleep when the screen goes off, Mobile Shopper might go offline when the first item is scanned after reactivating the screen due to the time it takes the application to reconnect to the Mobile Engine. The application will automatically recover from going offline, so you should consider whether that scenario is acceptable, as compared to the potential decrease in battery life that can result from changing the WiFi setting to "Never".

Some WiFi routers/access points might not support the 802.11d specification, and therefore it might be necessary to un-check this option in order to get the MC40 to connect to your WiFi network (see Table 58 on page 191). Enabling the 802.11d specification results in country information being sent from the MC40 in beacons and probe requests or responses, and some WiFi routers or access points might not support the country information being included. However, disabling the 802.11d specification might violate the regulations of some countries. Disabling this option may not be appropriate in all areas of the world. Disabling 802.11d should only be considered if your MC40 fails to connect to your WiFi router or access point.

Table 58. MC40 Advanced WiFi settings

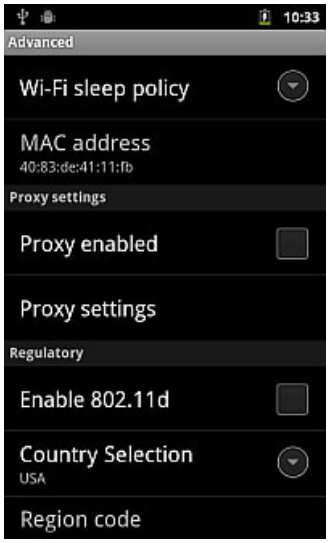


Figure 226. MC40 Advanced WiFi settings (1 of 3)

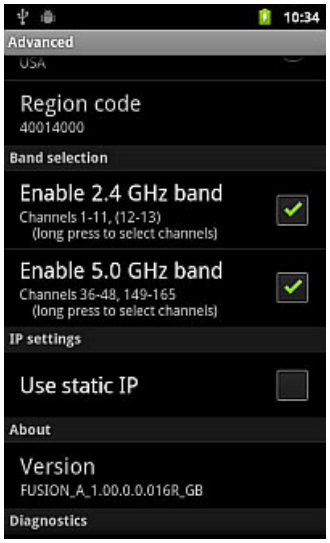


Figure 227. MC40 Advanced WiFi settings (2 of 3)

Figure 228. MC40 Advanced WiFi settings (3 of 3)

In areas with multiple WiFi networks, it might also be necessary to disable one of the band selections. Enabling only the 2.4 GHz band or 5.0 GHz band (the band matches the WiFi network you are using), can result in the MC40 maintaining a more stable WiFi connection.

Chapter 10. Problem determination

This section describes the troubleshooting and debugging resources provided by Toshiba TCxAmplify and explains how to use them.

Trace types

Several types of traces are available to aid you in troubleshooting program execution problems. Table 59 lists the trace types and describes the information they provide.

Table 59. Trace types

Type of trace	Trace contents
SI GUI, AEF, and CSS trace	Output from Java classes. Good for tracing the startup of the SI GUI and AEF classes.
Session trace	Session information such as state changes, input data, traction events, application XML, and SI GUI XML diagnostics.
Java I/O processor (JIOP)	Output from the Java I/O processor such as keyboard, scanner, states and 2x20 information from the JIOP.
Device manager trace	Output from the device manager.

For details on how to take a CHEC extract (capture data for error analysis), see the *Checkout Environment for Consumer-Service Version 6.6 Operations Guide* in the section that outlines the procedures on performing an extract.

Trace file location

To facilitate troubleshooting the configuration and program execution problems, Store Integrator produces trace logs in the `C:\SILOGS` directory. For Store Integrator GUI, the level of logging is determined by the log properties file specified in the response file that starts the terminal (see Table 61 on page 197). For CSS (virtual sessions), the level of logging is determined by the value specified in the aef.logger property in the `AEFLOAD.PRO` file (see Table 60).

Note: Setting your logging levels to FINE, FINER, or FINEST will degrade the system performance. See “Java logging properties” on page 197 for additional information about these options.

Table 60. Properties of AEFLOAD.PRO

Property	Description
aef.logger	This property selects which logger file is to be used, `sminlogs.pro`, `smidlogs.pro`, or `smaxlogs.pro` for minimal logging, moderate logging or maximum logging, in that order. For moderate logging, `smidlogs.pro`, is the recommended default.

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Table 60. Properties of AEFLOAD.PRO (continued)

Property	Description
aef.enhanced.logger	This property is used when running CSS under Java 6. The property selects which logger file is to be used, `sminlogs.pro`, `smidlogs.pro`, or `smaxlogs.pro` for minimal logging, moderate logging or maximum logging in that order. For moderate logging, `smidlogs.pro` is the recommended default.
ramDisk.enable	To speed up the loading time for virtual sessions, a controller RAM disk can be used to store JAR files that are only used during initialization. The default value of this property is true. However, if the system does not contain a defined controller RAM disk, the normal loading process is followed.
Note: All of the following properties are ignored if ramDisk.enable is false.	
ramDisk.drive	Sets the disk drive assignment for the controller RAM disk. Only the Q: drive is supported.
ramDisk.filex	Files to be loaded into the controller RAM disk where ***x*** is a distinct, but not necessarily a sequential number. Files maintain the same directory structure in the RAM disk. If the directories do not exist in the RAM disk, they are created, such as `ramDisk.file1 = ADX_IPGM:aef.jar`. If the file does not exist, a message is logged in `virtout.xx` and the system continues without modifying the classpath for the missing file. There is no limit to the number of files that can be moved to the RAM disk as long as the RAM disk is configured to a correct size. The RAM disk loader always looks at the first 50 entries, and then scales back to 10 entry increments. As long as it continues to find file entries, it looks for 10 more.
ramDisk.loadx	This property defines extra files that you want the loader to place into RAM disk. None of these files will modify the generated classpath. Resources, images, and other user files can be placed here. Only user programs or extensions will have access to the loaded files.
ramDisk.verifyx	The files defined with this property must be placed in the RAM disk before AEF can launch. If these files cannot be located, the system will cancel the operation and exit. The defined RAM disk drive letter will be prepended to the "verify" files before the file search begins. CSS cancels the operation after the verify timeout (the default is 60 seconds) if the files are not found. Error messages for the files that are not located will be written to the `virterr.xx` file.
verify Timeout	This is the maximum time (in seconds) that CSS will wait for verification files (specified through ramDisk.verifyx) to be loaded or available. If the files are not present by the end of the timeout, CSS will cancel the operation and a list of the missing files will be displayed in `virterr.xx` status files. All missing files must be found in this time period; this is not a per file delay. The default value is 60 seconds.
ramDisk.verbose	This property controls the controller RAM disk classloader log output level to `virterr` and `virtout`. The default value is false. If true, the classpath and class loader information are logged to show the location of each loaded file.
ramDisk.veryVerbose	When this property is set to true, the log displays all loads of classes into the ClassLoader. It is used primarily for debugging; the default value is false.

Table 60. Properties of AEFLOAD.PRO (continued)

Property	Description
ramDisk.disableClassLoader	If true, the classpath is not substituted with any files that were defined with the ramDisk.filex properties. Those files will still be loaded to the RAM disk; but if they are to be used, the classpath must be manually updated. The default value is false.

You can configure your logging so that SILOG entries on both the 4690 and client machines trigger event notifications to Remote Management Agent (RMA). To enable this capability:

1. Set the `create.SI.RMA.LogMonitor` property in the `config.properties` bundle to true.
2. Select which log messages trigger events to RMA.

You can specify a log level and class (or package) name using the properties `SI.RMA.LogMonitor.include.x` and `SI.RMA.LogMonitor.exclude.x` in the `config.properties` bundle.

Notes:

1. The ***x*** in the previous include and exclude properties is a unique number. The include numbers are separate from the exclude numbers so they can be identical.
2. You can specify as many include or exclude values as required. However, after a break of more than five numbers in the sequence, Store Integrator ignores the subsequent entries.

The following example illustrates how you can use property settings to configure an event notification on all:

- INFO messages that occur within the POSAutomationProviderImpl class
- WARNING messages that occur within the automation package
- SEVERE messages, except those that occur within the AEFSessionImpl class.

```
create.SI.RMA.LogMonitor=true
SI.RMA.LogMonitor.include.0=WARNING,com.ibm.retail.AEF.automation
SI.RMA.LogMonitor.include.1=SEVERE
SI.RMA.LogMonitor.include.2=INFO,com.ibm.retail.AEF.automation.POSAutomationProviderImpl
SI.RMA.LogMonitor.exclude.0=SEVERE,com.ibm.retail.AEF.session.AEFSessionImpl
```

Store Integrator GUI traces

The Store Integrator GUI log files are written to the `C:\SILOGS` directory. For a stand-alone terminal with a DHCP assigned IP address, the file name is `Tssss###.n`, where ***ssss*** is the store number, ***###*** is the terminal number and ***n*** is a unique number (with 0 being the most recent). For a stand-alone terminal with a static IP address, the file name is `termip.n` where ***termip*** is the resolved IP name of the terminal and ***n*** is the unique number (with 0 being the most recent).

Depending upon the logging level that you selected (see Table 61 on page 197), the system might generate a second trace file. This file uses the same naming convention as described previously, but with an ***m*** following the unique number. This log contains additional tracing that might assist in resolving a severe error.

Minimal logging

The response files (see Table 61 on page 197) are set to use the SVLOG.PRO log property file in the C:\ADX_IPGM directory for systems with the Store Integrator GUI. These property files are set to log severe errors, with the resulting trace file placed in the C:\SILOGS directory.

Moderate logging

For moderate logging, use the response files that have MID in their names (see Table 61 on page 197). These response files are set to use the SVLOGMID.PRO log property file in the C:\ADX_IPGM directory for systems with the Store Integrator GUI. These property files are set to log startup information, with the resulting trace file placed in the C:\SILOGS directory.

Maximum logging

For maximum logging, use the response files that contain DBG in the name (see Table 61 on page 197). These response files are set to use the SVLOGDBG.PRO log property file in the C:\ADX_IPGM directory for systems with the Store Integrator GUI. These property files are set to log startup information, with the resulting trace file placed in the C:\SILOGS directory, just as is done with the moderate logging.

Maximum logging captures all startup information, as well as any errors that could keep the Store Integrator GUI or AEF from starting. If the Store Integrator GUI or AEF does not start and maximum logging does not provide enough information to determine what the problem is, see “Redirecting standard error” on page 198.

CSS (virtual session) trace

The CSS (virtual session) log files are also written to the f:\si\logs directory. The file format is ***Sxx.n***, where ***xx*** is the controller node ID and ***n*** is a unique number (with 0 being the most recent). Each controller that you defined to support virtual sessions has a separate set of logs.

Depending on the logging level that you selected, a second trace file might be generated. This file uses the same naming convention as described previously, but with an ***m*** following the unique number. This log contains additional tracing that might assist in resolving a severe error.

See Table 60 on page 193) for instructions on selecting the AEF logging level. Minimal, moderate or maximum logging levels are available.

Remote GUI trace

Trace files for the Remote GUI are written to the %SI_HOME%\silogs directory. These filenames are log_termnum.n.txt where ***termnum*** is the remote terminal number, and ***n*** is the unique number (with 0 being the most recent).

POSBC trace

The POSBC trace files are on the Windows machine in the %SI_HOME%\silogs directory. The file name for the POSBC logs is posbc_log.# where **#** is a unique number (with 0 being the most recent).

Table 61. Mapping Store Integrator GUI response files to logging levels

Response file	Logging properties file	Logging level
OPER.RSP	SVLOG.PRO	Minimal
OPERCT.RSP		
CUST.RSP		
CUSCT.RSP		
DUALDISP.RSP		
DDCT.RSP		
OPERMID.RSP	SVLOGMID.PRO	Moderate
OPRCTMID.RSP		
CUSTMID.RSP		
CSTCTMID.RSP		
DUALMID.RSP		
DDCTMID.RSP		
OPERDBG.RSP	SVLOGDBG.PRO	Maximum
OPRCTDBG.RSP		
CUSTDBG.RSP		
CSTCTDBG.RSP		
DUALDBG.RSP		
DDCTDBG.RSP		

The default types of logging for Store Integrator are minimal, moderate, and maximum. If you have problems starting the Store Integrator GUI, examine the trace file generated by moderate logging. If that log does not provide enough information, use maximum logging.

Java logging properties

The current Store Integrator implementation uses the logging capabilities built into Java's JDK 1.4. The log properties files are all modified copies of the default Java `logging.properties` file. For detailed information on how to modify this file, see the Java JDK 1.4 documentation. To change the amount of information being logged, change the level in each line that contains .level = to one of the following values:

SEVERE

Extremely important messages that indicate conditions from which the program might not recover, requiring immediate attention. This level is likely to be included in all log files or consoles. SEVERE conditions include:

- Java exceptions
- Missing `EALAEFXF.DAT` or `EAMAEFXF.DAT` files
- Missing property files

WARNING

Serious problems that might not require immediate attention, but should definitely be noted. WARNING conditions include:

- Missing bundle keys or values
- Factory cannot create object messages
- Invalid values

- Condition lock timeouts which will include condition states

INFO Informational messages resulting from normal operation. This level is the default for loggers and handlers, so INFO messages are seen during normal runs. INFO events include:

- Error Helper creation
- Error Helper handleError() return values
- AEFBase configuration
- Dump of the bundles which includes all the values from the property files
- Java health pipe creation

CONFIG
Informational messages about configuration or setup information, usually displayed at startup. This level indicates what the program intends to do and how it will do it, rather than what it is actually doing.

FINE Messages that provide greater detail for debugging and diagnosing problems. FINE information includes:

- Automation call summary (for example, Operator 999999 logon called).
- SalesTransaction call summary (for example, Add item 3 (itemid toString())called).
- XML statements received from base application.

FINER Messages providing even more detail for debugging and diagnosing problems. These log records are so numerous that they are typically not logged unless it is absolutely necessary.

FINEST
Messages providing the most detail for debugging and diagnosing problems. These log records are so numerous that they are typically not logged unless it is absolutely necessary. FINEST records are generated when entering and leaving methods.

Note: Logging at this level will impact system performance, especially on larger session loads. Prudent application of this level of logging is required.

ALL Enables logging of all records.

OFF Disables logging.

Redirecting standard error

If the selected logging level does not provide enough information to identify an error, refer to `c:/silogs/stderr.txt` and `c:/silogs/stdout.txt` on the controller that is defined in LAN Terminal Definition to control the terminal whose information you want to see.

Session trace

Session trace information, such as states and application data, along with XML processing, is logged to the session trace. If you are using a Store Integrator GUI terminal, you can access this trace by clicking on the operator ID at the bottom of the Store Integrator GUI screen. Doing so displays a dialog where you can select Terminal Trace. The session trace information is displayed in a dialog. Clicking

Save in the dialog saves the session trace to the C:\SILOGS directory, with the name **SAVExxx.yyy**, where ***xxx*** is the terminal number and ***yyy*** is a rotating number from 0 to 999.

The session trace is also saved to a file automatically when a severe error occurs. When a severe error occurs, the error is written to the session trace and the session trace is written to the C:\SILOGS directory with a file name of AUTOterm.n, where term is the terminal number, and ***n*** is a unique number (with 0 being the most recent).

Audit tracing

Currently, session trace logs from the Store Integrator GUI are only captured through manual interaction with the Terminal Trace menu option. Store Integrator GUI, Remote GUI and virtual sessions can also create a session trace log if a severe error occurs. You might not obtain a timely session trace if a problem occurs that is not severe in Store Integrator terms. However, you can maintain the session trace logs for extended time frames in an automated manner.

Device Manager trace

The Device Manager trace is used to get detailed information from the Device Manager about the POS devices. The default configuration for this type of trace is stored in com/ibm/retail/DevMgr/logging/logging.properties. This file is delivered in OS4690.ZIP, which is part of the 4690 operating system. Because OS4690.ZIP is listed in the classpath for the Store Integrator applications, the Device Manager code will find it and initialize itself based on its contents. All Device Manager logging is disabled by default.

To change the default logging behavior, create a modified version of com/ibm/retail/DevMgr/logging/logging.properties (using the original as a model) and include it in a ZIP or JAR file that is ahead of OS4690.ZIP in the classpath. It is recommended that the new com/ibm/retail/DevMgr/logging/logging.properties file be zipped into USER.JAR. This JAR file is already referenced in the response files provided for the GUI (such as OPERMID.RSP) or in the file that is used to start CSS (AEFVIRT.TXT).

This properties file must contain the following properties:

Terminals
: Defines which terminals have tracing enabled. Valid values for this property are none (the default), all, or a range of terminal numbers. A range is specified as either a single integer (example: 45) or two integers separated by a hyphen (example: 37-42).

ALLDevices
: Enables or disables tracing for all devices. Valid values are true and false.

Problem determination scenarios

Following are problem and resolution sequences:

Problem: I completed all the steps, but the self-service scale will not load.
: **Resolution**: Check the trace logs for the terminal to identify the problem.

Problem: My self-service pay station (or CHEC) lane will not load, and the Mobile Server is giving a "cannot sign on" to terminal IDs message.

Resolution: Confirm that the ACE operator authorization records match the operator IDs and passwords defined in `siuserlogon.properties` in `siuser.jar`.

Problem: The self-service scale is printing to the 4690 printer.

Resolution: Make sure the `aefio.xml` file in `c:\adx_idt1` on the 4690 is accurate and distributed to all controllers.

Problem: When ending an order on the mobile device, the Store Integrator GUI or CHEC Lane will display B678 Unable to Retrieve Data.

Resolution: Make sure to follow the instructions for ACECMISC. For more details, see item 4c on page 31.

Problem: When entering a weight required or quantity required item, the item description has strange characters that do not match the ACE description.

Resolution: The item file may have a different key length, size, or description offset than that used by the Mobile Shopper. The default values for the Mobile Shopper are:

```
itemFile.name=R::$AMITEMR
itemFile.record.size=169
itemFile.key.length=7
itemFile.desc.offset=26
itemFile.desc.length=18
```

If you need to change these values, place them in `siusermobileserver.properties`, then zip them into `siuser.jar` and place this file in the classpath.

Problem: Mobile transaction transfer does not complete successfully on ACE.

Resolution: Perform the following steps:

1. Verify the acting master/file server is online.
2. Verify that both the **ACEGIPC** and **ACESRBKL** background applications are running as documented in Chapter 6, “Configuring the Mobile Shopper on 4690,” on page 31.
3. Verify that you have changed the suspend interval to 3000ms as documented in Chapter 6, “Configuring the Mobile Shopper on 4690,” on page 31.
4. Verify that the barcodes on the terminals reflect the correct terminal number.

Problem: Mobile shoppers experience connectivity problems despite a strong WiFi signal.

Resolution: The Mobile Engine should be restarted by using the **MEMANAGE** command described in “Controlling the Mobile Engine” on page 38.

Appendix A. Solution extension

Property extension mechanism

The Mobile Shopper POS solution uses the same extension mechanism as Store Integrator to allow a retailer to override configuration property values. See Table 62 for properties files for the Mobile Shopper POS solution.

Table 62. Properties files for Mobile POS

Bundle Name	Files	Description
Mobile Server*	1. mobileserver.properties 2. siibmmobileserver.properties 3. sibuspmobileserver.properties 4. sicompanymobileserver.properties 5. sistoremobileserver.properties 6. siusermobileserver.properties 7. usermobileserver.properties	Specifies various configuration options for the mobile engine.
Mobile Text*	1. mobiletext.properties 2. siibmmobiletext.properties 3. sibuspmobiletext.properties 4. sicompanymobiletext.properties 5. sistoremobiletext.properties 6. siusermobiletext.properties 7. usermobiletext.properties	Specifies the text used by the Mobile Engine to display on the mobile device, Mobile GUI, self-service scale, and the self-service pay station.
Store Integrator GUI Button Text	1. mobilePOSLabelText.properties 2. TGCSCustMobilePOSLabelText.properties 3. BuspCustMobilePOSLabelText.properties 4. CompCustMobilePOSLabelText.properties 5. StoreCustMobilePOSLabelText.properties 6. CustMobilePOSLabelText.properties	Specifies the text displayed as Store Integrator GUI labels.

Note: *These bundles can be configured for specific roles such as Mobile Shopper or Line Buster. For example, to extend mobile server properties for Line Buster we would name the file `siusermobileserver_LineBuster.properties`, etc.

If the properties updated only affect the mobile device application, then these extension files can be placed in the same directory as the start up file for the solution (normally `c:\Program Files\StoreIntegrator\Mobile`). If the properties being updated extend the Store Integrator GUI or CHEC system, you must include these files in the necessary extension files for these solutions. For the Store Integrator GUI for example, the files would be placed in the `svuser.jar` file. If you are modifying files that apply to the self-service scale, the files would be placed in `sssuser.jar`.

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Appendix B. Configuring the Toshiba B-EP2DL Printer

Use the following steps to configure the Toshiba B-EP2DL Printer:

1. Acquire the device drivers and configuration utility (B-EP Setting Tool) from Toshiba TEC and install to a Microsoft® Windows® machine where the printers will be configured. Current versions are:
   a. B-EP Setting Tool v 1.2
   b. Driver v. 7.3.3 M-1
2. Press and hold the **Feed** button, and then press the **Power** button to power on the printer in system mode. Connect the printer through the USB port to the PC, and launch the B-EP Setting Tool.
3. Press the **Get Param** button to load the printer's current settings.

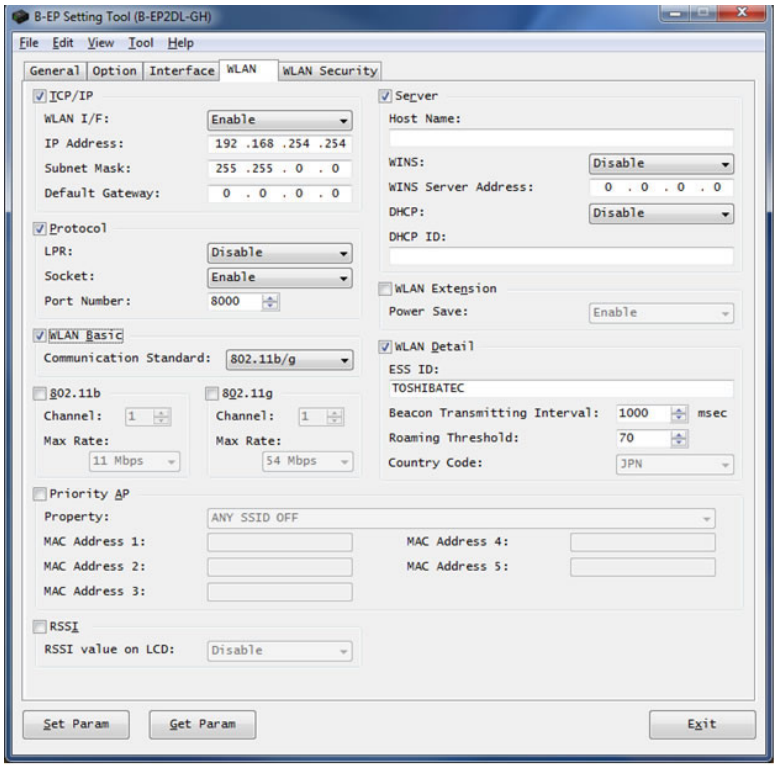

Figure 229. B-EP Setting Tool

4. On the **WLAN** tab, configure the wireless and network settings for your network. The printer should be assigned a static IP address on the same subnet as Mobile Engine.
5. On the **WLAN Security** tab, set the appropriate settings for your WiFi network.
6. On the **General** tab, set the Print Command Language to **Receipt**.

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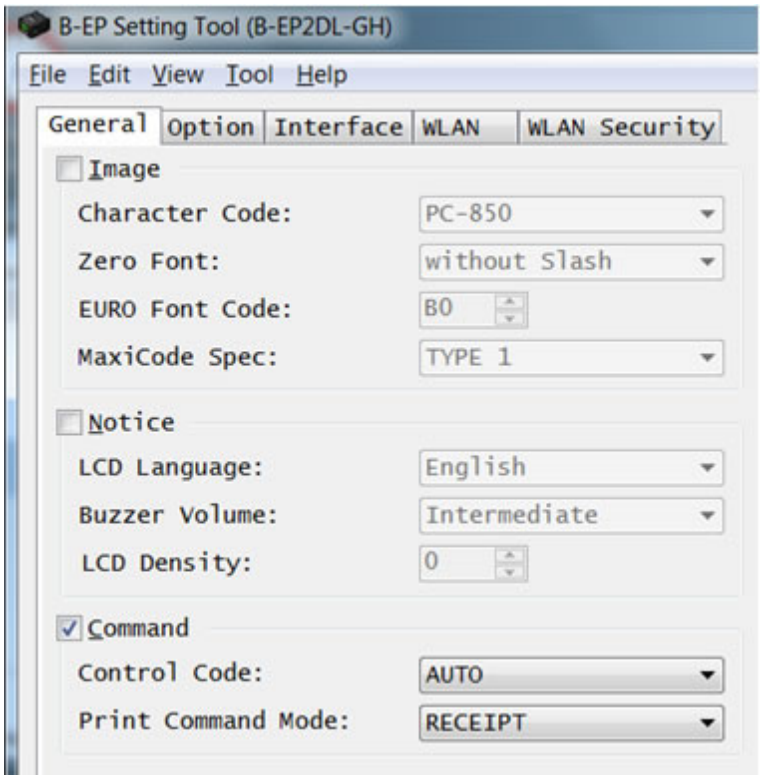

Figure 230. Setting the Print Command Language

7. When finished, press **Set Param** to send the settings to the printer.
8. Power-cycle the printer and disconnect it from the USB cable.
9. To verify the printer is on the network, ping the IP address of the printer. (This assumes that ping is available on your network.)
10. For convenience, you may print a code 128 or QR barcode that contains the connection information (IP address or hostname) to affix to the printer. You can then scan the barcode to pair with the printer when prompted in the Associate Line Busting application.
11. If you are not using the default port (8000) for the Toshiba B-EP2DL Printer, you must update the port in the `siusermobileserver.properties` file and update the Mobile Engine.
    a. If you are running Mobile Engine on 4690 and the `ADX_IPGM` directory contains `mserpro.mob`, open the `ADX_IPGM:mserpro.mob` file for editing.
    b. To modify the `siusermobileserver.properties` file:
        1) Change to the `m:\mobuser` directory.
        2) Extract the `siusermobileserver.properties` file for editing: `m:\java2\bin\jar -xvf ADX_IPGM:mobuser.jar siusermobileserver.properties`.
        3) Modify the `siusermobileserver.properties` as follows: `mobile.printer.connect.port=9100`.
        4) Update the jar file to contain the changes: `m:\java2\bin\jar -uvf ADX_IPGM:mobuser.jar siusermobileserver.properties`.
        5) Distribute `mobuser.jar` by running: a `dxcsu0l 3 5 ADX_IPGM:mobuser.jar`.
        6) In `adx_ipgm`, run `adx_ipgm:mobj6pat.bat` on all controllers:

```
adxnszzl -c mobj6pat.zip mobuser.jar
adxcsu01 3 5 adx_ipgm:mobj6pat.zip
```

c. If you were editing the `mserpro.mob` file, save and close the file.

d. Restart any controller processes that use `ADX_IPGM:mobuser.jar`.

How to disable WiFi printing

For Associate Line Busting, printing is enabled and configured to print using the Toshiba B-EP2DL mobile printer. To turn off WiFi printing, modify the `siusermobileserver_LineBuster.properties` file using the following steps:

1. If you are running Mobile Engine on 4690 and the `ADX_IPGM` directory contains `mserpro.mob`, open `ADX_IPGM:mserpro.mob` file for editing.
2. Otherwise, do the following:
   a. Change to the `m:\mobuser` directory.
   b. Extract the `siusermobileserver.properties` file for editing:
      `m:\java2\bin\jar -xvf ADX_IPGM:mobuser.jar siusermobileserver.properties`
   c. Modify the `siusermobileserver.properties` as follows:
      `allow.wifi.printing=false`
   d. Update the jar file to contain the changes: `m:\java2\bin\jar -uvf ADX_IPGM:mobuser.jar siusermobileserver.properties`
   e. Distribute `mobuser.jar` by running: `adxcsu0l 3 5 ADX_IPGM:mobuser.jar`
3. If you were editing the `mserpro.mob` file, save and close the file.
4. Restart any controller processes that use `ADX_IPGM:mobuser.jar`. In `adx_ipgm`, run `adx_ipgm:mobj6pat.bat` on all controllers:

```
adxnszzl -c mobj6pat.zip mobuser.jar
adxcsu01 3 5 adx_ipgm:mobj6pat.zip
```

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This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. Toshiba Global Commerce Solutions is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

Industry Canada Class A Emission Compliance statement

This Class A digital apparatus complies with Canadian ICES-003.

Avis de conformité aux normes d'Industrie Canada

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

European Union Electromagnetic Compatibility (EMC) Directive Conformance Statement

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. Toshiba Global Commerce Solutions cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-Toshiba Global Commerce Solutions option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

European Community (EC) Mark of Conformity Statement

This product is in conformity with the protection requirements of EC Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. Toshiba Global Commerce Solutions cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-Toshiba Global Commerce Solutions option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22 / European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

Warning: This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

Germany

Zulassungsbescheinigung laut dem Deutschen Gesetz über die elektromagnetische Verträglichkeit von Geräten (EMVG) vom 30. August 1995 (bzw. der EMC EG Richlinie 89/336).

Dieses Gerät ist berechtigt in Übereinstimmung mit dem Deutschen EMVG das EG-Konformitätszeichen - CE - zu führen.

Verantwortlich für die Konformitätserklärung nach Paragraph 5 des EMVG ist die Toshiba Global Commerce Solutions (Germany) GmbH.

Informationen in Hinsicht EMVG Paragraph 3 Abs. (2) 2:

Das Gerät erfüllt die Schutzanforderungen nach EN 50082–1 und EN 55022 Klasse A.

EN 55022 Klasse A Geräte müssen mit folgendem Warnhinweis versehen werden:

"Warnung: dies ist eine Einrichtung der Klasse A.Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maβnahmen durchzuführen und dafür aufzukommen."

EN 50082–1 Hinweis:

"Wird dieses Gerät in einer industriellen Umgebung betrieben (wie in EN 50082–2 festgelegt), dann kann es dabei eventuell gestört werden. In solch einem Fall ist der Abstand bzw. die Abschirmung zu der industriellen Störquelle zu vergrößern."

Anmerkung:

Um die Einhaltung des EMVG sicherzustellen sind die Geräte, wie in den Toshiba Global Commerce Solutions Handbüchern angegeben, zu installieren und zu betreiben.

Australia and New Zealand

Attention: This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

Electrostatic Discharge (ESD)

Attention: Electrostatic discharge (ESD) damage can occur when there is a difference in charge between the part, the product, and the service person. No damage will occur if the service person and the part being installed are at the same charge level.

ESD damage prevention

Anytime a service action involves physical contact with logic cards, modules, back-panel pins, or other ESD sensitive (ESDS) parts, the service person must be connected to an ESD common ground point on the product through the ESD wrist strap and cord.

The ESD ground clip can be attached to any frame ground, ground braid, green wire ground, or the round ground prong on the AC power plug. Coax or connector outside shells can also be used.

Handling removed cards

Logic cards removed from a product should be placed in ESD protective containers. No other object should be allowed inside the ESD container with the logic card. Attach tags or reports that must accompany the card to the outside of the container.

Chinese Class A warning statement

Attention: This is a Class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

中华人民共和国“A 类”警告声明

声　明

此为 A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对其干扰采取切实可行的措施。

Japanese Electrical Appliance and Material Safety Law statement

本製品およびオプションに電源コードセットが付属する場合は、それぞれその装置専用のものになっていますので他の機器には使用しないで下さい。

Japanese power line harmonics compliance statement

高調波ガイドライン適合品

高調波ガイドライン適合品

Japanese Voluntary Control Council for Interference (VCCI) statement

Attention: This is a Class A product based on the standard of the VCCI Council. If this equipment is used in a domestic environment, radio interference may occur, in which case, the user may be required to take corrective actions.

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI－A

Japan Electronics and Information Technology Industries Association (JEITA) statement

高調波ガイドライン準用品

Japanese Electronics and Information Technology Industries Association (JEITA) Confirmed Harmonics Guideline (products less than or equal to 20 A per phase).

Korean communications statement

Please note that this device has been approved for business purposes with regard to electromagnetic interference. If you find this is not suitable for your use, you may exchange it for a non-business purpose one.

이 기기는 업무용(A급)으로 전자파적합기기로서 판매자 또는 사용자는 이 점을 주의하시기 바라며, 가정외의 지역에서 사용하는 것을 목적으로 합니다.

Taiwanese Class A warning statement

警告使用者:
這是甲類的資訊產品，在
居住的環境中使用時，可
能會造成射頻干擾，在這
種情況下，使用者會被要
求採取某些適當的對策。

Cable ferrite requirement

All cable ferrites are required to suppress radiated EMI emissions and must not be removed.

Product recycling and disposal

This unit must be recycled or discarded according to applicable local and national regulations. Toshiba Global Commerce Solutions encourages owners of information technology (IT) equipment to responsibly recycle their equipment when it is no longer needed. Toshiba Global Commerce Solutions offers a variety of product return programs and services in several countries to assist equipment owners in recycling their IT products. Information on Toshiba Global Commerce Solutions product recycling offerings can be found at the product recycling programs Web site .

Español:
Esta unidad debe reciclarse o desecharse de acuerdo con lo establecido en la normativa nacional o local aplicable. Toshiba Global Commerce Solutions recomienda a los propietarios de equipos de tecnología de la información (TI) que reciclen responsablemente sus equipos cuando éstos ya no les sean útiles. Toshiba Global Commerce Solutions dispone de una serie de programas y servicios de devolución de productos en varios países, a fín de ayudar a los propietarios de equipos a reciclar sus productos de TI. Se puede encontrar información sobre las ofertas de reciclado de productos de Toshiba Global Commerce Solutions en el sitio webproduct recycling programs.

Notice: This mark applies only to countries within the European Union (EU) and Norway.

Appliances are labeled in accordance with European Directive 2002/96/EC concerning waste electrical and electronic equipment (WEEE). The Directive determines the framework for the return and recycling of used appliances as

applicable throughout the European Union. This label is applied to various products to indicate that the product is not to be thrown away, but rather reclaimed upon end of life per this Directive.

Remarque : Cette marque s'applique uniquement aux pays de l'Union Européenne et à la Norvège. L'etiquette du système respecte la Directive européenne 2002/96/EC en matière de Déchets des Equipements Electriques et Electroniques (DEEE), qui détermine les dispositions de retour et de recyclage applicables aux systèmes utilisés à travers l'Union européenne. Conformément à la directive, ladite étiquette précise que le produit sur lequel elle est apposée ne doit pas être jeté mais être récupéré en fin de vie.

注意: このマークは EU 諸国およびノルウェーにおいてのみ適用されます。

この機器には、EU 諸国に対する廃電気電子機器指令 2002/96/EC(WEEE) のラベルが貼られています。この指令は、EU 諸国に適用する使用済み機器の回収とリサイクルの骨子を定めています。このラベルは、使用済みになった時に指令に従って適正な処理をする必要があることを知らせるために種々の製品に貼られています。

In accordance with the European WEEE Directive, electrical and electronic equipment (EEE) is to be collected separately and to be reused, recycled, or recovered at end of life. Users of EEE with the WEEE marking per Annex IV of the WEEE Directive, as shown above, must not dispose of end of life EEE as unsorted municipal waste, but use the collection framework available to customers for the return, recycling, and recovery of WEEE. Customer participation is important to minimize any potential effects of EEE on the environment and human health due to the potential presence of hazardous substances in EEE. For proper collection and treatment, contact your local Toshiba Global Commerce Solutions representative.

Disposal of IT products should be in accordance with local ordinances and regulations.

Battery return program

This product may contain sealed lead acid, nickel cadmium, nickel metal hydride, lithium, or lithium ion battery. Consult your user manual or service manual for specific battery information. The battery must be recycled or disposed of properly. Recycling facilities may not be available in your area. For information on disposal of batteries go to the Battery disposal Web site or contact your local waste disposal facility.

For Taiwan:

Please recycle batteries.

For the European Union:

Notice: This mark applies only to countries within the European Union (EU)

Batteries or packaging for batteries are labeled in accordance with European Directive 2006/66/EC concerning batteries and accumulators and waste batteries and accumulators. The Directive determines the framework for the return and recycling of used batteries and accumulators as applicable throughout the European Union. This label is applied to various batteries to indicate that the battery is not to be thrown away, but rather reclaimed upon end of life per this Directive.

Les batteries ou emballages pour batteries sont étiquetés conformément aux directives européennes 2006/66/EC, norme relative aux batteries et accumulateurs en usage et aux batteries et accumulateurs usés. Les directives déterminent la marche à suivre en vigueur dans l'Union Européenne pour le retour et le recyclage des batteries et accumulateurs usés. Cette étiquette est appliquée sur diverses batteries pour indiquer que la batterie ne doit pas être mise au rebut mais plutôt récupérée en fin de cycle de vie selon cette norme.

バッテリーあるいはバッテリー用のパッケージには、EU 諸国に対する廃電気電子機器指令 2006/66/EC のラベルが貼られています。この指令は、バッテリーと蓄電池、および廃棄バッテリーと蓄電池に関するものです。この指令は、使用済みバッテリーと蓄電池の回収とリサイクルの骨子を定めているもので、EU 諸国にわたって適用されます。このラベルは、使用済みになったときに指令に従って適正な処理をする必要があることを知らせるために種々のバッテリーに貼られています。

In accordance with the European Directive 2006/66/EC, batteries and accumulators are labeled to indicate that they are to be collected separately and recycled at end of life. The label on the battery may also include a chemical symbol for the metal concerned in the battery (Pb for lead, Hg for mercury and Cd for cadmium). Users of batteries and accumulators must not dispose of batteries and accumulators as unsorted municipal waste, but use the collection framework available to customers for the return, recycling and treatment of batteries and accumulators. Customer participation is important to minimize any potential effects of batteries and accumulators on the environment and human health due to the potential presence of hazardous substances. For proper collection and treatment, contact your local Toshiba Global Commerce Solutions representative.

This notice is provided in accordance with Royal Decree 106/2008 of Spain: The retail price of batteries, accumulators and power cells includes the cost of the environmental management of their waste.

For California:

Perchlorate material – special handling may apply

Refer to www.dtsc.ca.gov/hazardouswaste/perchlorate.

The foregoing notice is provided in accordance with *California Code of Regulations Title 22, Division 4.5, Chapter 33: Best Management Practices for Perchlorate Materials*. This product/part includes a lithium manganese dioxide battery which contains a perchlorate substance.

Flat panel displays

The fluorescent lamp in the liquid crystal display contains mercury. Dispose of it as required by local ordinances and regulations.

Monitors and workstations

Connecticut: Visit the website of the Department of Environmental Protection at www.ct.gov/dep for information about recycling covered electronic devices in the State of Connecticut, or telephone the Connecticut Department of Environmental Protection at 1-860-424-3000.

Oregon: For information regarding recycling covered electronic devices in the state of Oregon, go to the Oregon Department of Environmental Quality site at www.deq.state.or.us/lq/electronics.htm.

Washington: For information about recycling covered electronic devices in the State of Washington, go to the Department of Ecology Website at https://fortress.wa.gov/ecy/recycle/ or telephone the Washington Department of Ecology at 1-800Recycle.

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